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Mapping and Sequencing the Human Genome **Understanding Genetics** Human Genes and Genomes *Scientific Frontiers in Developmental Toxicology and Risk Assessment Human Genetics and Genomics, Includes Wiley E-Text Molecular Biology of the Cell* **Exploring the Biological Contributions to Human Health** *Genome: The Autobiography of a Species in 23 Chapters Evolution of the Human Genome I* **Human Genetics and Genomics Genomics Cell Biology by the Numbers The Gene** *The Selfish Gene Exons, Introns, and Talking Genes* The Human Genome **Molecular Biology of the Gene** Heritable Human Genome Editing *Medical genetics 1* **Human Population Genetics and Genomics The History and Geography of Human Genes Human Molecular Genetics** Genomic Medicine **SUMO-1 Mapping in the Human Genome Andits Implications for Transcription Control** *Human Genes and Neoliberal Governance* **EVOLUTION ORIENTED GENOME PERSONALISED Human Gene Evolution Who We Are and How We Got Here** A Brief History of Everyone Who Ever Lived The Double Helix The Human Genome Project **CRISPR People A Guide to Human Gene Therapy In Silico Detection of Genes Regulated by Repressor Element 1 (RE1) in the Human Genome Functional Analysis of the Human Genome Human Genome Editing** The Yeast Two-hybrid System **Genome** From Biotechnology to Genomes *Gene Expression and Phenotypic Traits*

Genome Dec 21 2019 Studies the attempt to map all the genes in the human body, examining the resulting breakthroughs and the implications for research.

Cell Biology by the Numbers Mar 16 2022 A Top 25 CHOICE 2016 Title, and recipient of the CHOICE Outstanding Academic Title (OAT) Award. How much energy is released in ATP hydrolysis? How many mRNAs are in a cell? How genetically similar are two random people? What is faster, transcription or translation?Cell Biology by the Numbers explores these questions and dozens of others provid

Understanding Genetics Jan 26 2023 The purpose of this manual is to provide an educational genetics resource for individuals, families, and health professionals in the New York - Mid-Atlantic region and increase awareness of specialty care in genetics. The manual begins with a basic introduction to genetics concepts, followed by a description of the different types and applications of genetic tests. It also provides information about diagnosis of genetic disease, family history, newborn screening, and genetic counseling. Resources are included to assist in patient care, patient and professional education, and identification of specialty genetics services within the New York - Mid-Atlantic region. At the end of each section, a list of references is provided for additional information. Appendices can be copied for reference and offered to patients. These take-home resources are critical to helping both providers and patients understand some of the basic concepts and applications of genetics and genomics.

The Yeast Two-hybrid System Jan 22 2020 This volume, part of the Advances in Molecular Biology series, presents work by pioneers in the field and is the first publication devoted solely to the yeast two-hybrid system. It includes detailed protocols, practical advice on troubleshooting, and suggestions for future development. In addition, it illustrates how to construct an activation domain hybrid library, how to identify mutations that disrupt an interaction, and how to use the system in mammalian cells. Many of the contributors have developed new applications and variations of the technique.

A Brief History of Everyone Who Ever Lived Sep 29 2020 'A brilliant, authoritative, surprising, captivating introduction to human genetics. You'll be spellbound' Brian Cox This is a story about you. It is the history of who you are and how you came to be. It is unique to you, as it is to each of the 100 billion modern humans who have ever drawn breath. But it is also our collective story, because in every one of our genomes we each carry the history of our species - births, deaths, disease, war, famine, migration and a lot of sex. In this captivating journey through the expanding landscape of genetics, Adam Rutherford reveals what our genes now tell us about human history, and what history can now tell us about our genes. From Neanderthals to murder, from redheads to race, dead kings to plague, evolution to epigenetics, this is a demystifying and illuminating new portrait of who we are and how we came to be. *** 'A thoroughly entertaining history of Homo sapiens and its DNA in a manner that displays popular science writing at its best' Observer 'Magisterial, informative and delightful' Peter Frankopan 'An extraordinary adventure...From the Neanderthals to the Vikings, from the Queen of Sheba to Richard III, Rutherford goes in search of our ancestors, tracing the genetic clues deep into the past' Alice Roberts

Exploring the Biological Contributions to Human Health Aug 21 2022 It's obvious why only men develop prostate cancer and why only women get ovarian cancer. But it is not obvious why women are more likely to recover language ability after a stroke than men or why women are more apt to develop autoimmune diseases such as lupus. Sex differences in health throughout the lifespan have been documented. Exploring the Biological Contributions to Human Health begins to snap the pieces of the puzzle into place so that this knowledge can be used to improve health for both sexes. From behavior and cognition to metabolism and response to chemicals and infectious organisms, this book explores the health impact of sex (being male or female, according to reproductive organs and chromosomes) and gender (one's sense of self as male or female in society). Exploring the Biological Contributions to Human Health discusses basic biochemical differences in the cells of males and females and health variability between the sexes from conception throughout life. The book identifies key research needs and opportunities and addresses barriers to research. Exploring the Biological Contributions to Human Health will be important to health policy makers, basic, applied, and clinical researchers, educators, providers, and journalists-while being very accessible to interested lay readers.

Human Genetics and Genomics, Includes Wiley E-Text Oct 23 2022 This fourth edition of the best-selling textbook, Human Genetics and Genomics, clearly explains the key principles needed by medical and health sciences students, from the basis of molecular genetics, to clinical applications used in the treatment of both rare and common conditions. A newly expanded Part 1, Basic Principles of Human Genetics, focuses on introducing the reader to key concepts such as Mendelian principles, DNA replication and gene expression. Part 2, Genetics and Genomics in Medical Practice, uses case scenarios to help you engage with current genetic practice. Now featuring full-color diagrams, Human Genetics and Genomics has been rigorously updated to reflect today's genetics teaching, and includes updated discussion of genetic risk assessment, "single gene" disorders and therapeutics. Key learning features include: Clinical snapshots to help relate science to practice 'Hot topics' boxes that focus on the latest developments in testing, assessment and treatment 'Ethical issues' boxes to prompt further thought and discussion on the implications of genetic developments 'Sources of information' boxes to assist with the practicalities of clinical research and information provision Self-assessment review questions in each chapter Accompanied by the Wiley E-Text digital edition (included in the price of the book), Human Genetics and Genomics is also fully supported by a suite of online resources at www.korfgenetics.com, including: Factsheets on 100 genetic disorders, ideal for study and exam preparation Interactive Multiple Choice Questions (MCQs) with feedback on all answers Links to online resources for further study Figures from the book available as PowerPoint slides, ideal for teaching purposes The perfect companion to the genetics component of both problem-based learning and integrated medical courses, Human Genetics and Genomics presents the ideal balance between the bio-molecular basis of genetics and clinical cases, and provides an invaluable overview for anyone wishing to engage with this fast-moving discipline.

EVOLUTION ORIENTED GENOME PERSONALISED Jan 02 2021 ABOUT THE BOOK The Book is an interdisciplinary textbook, written with the intent of introducing two new concepts. A. The Association Constant (Ka) versus Entropy and Chaos. 1. The formation and evolution of chemical and biological compounds on atomic and molecular scales are the work of the four natural forces, enhanced by the existence of the natural constants and their remarkable adjustment. And the work of the covalent and noncovalent forces (bonds) being derived from the natural forces. So is the evolution of living organisms but with the essential and indispensable impact of the environment, violent and punctuate. 2. The effects of the natural forces (through the covalent and noncovalent bonds) is expressed by Ka. Therefore, Ka preserves what nature accomplishes by protecting matter against the action of entropy (a faulty distribution of matter), and by preserving free energy (-?G) against the action of chaos (a faulty distribution of energy). Evolution is an obligation to elegance and wisdom. 3. The Book draws straight and clear line connecting general relativity, i.e. gravity (the infinite large), quantum mechanics (the infinite small), and biology (the infinite complex). B. Individuality of the Human Genome. 1. Our uniqueness as species (Homo sapiens) is invariantly encoded in the protein-coding genes (about 2 percent of our DNA). These genes are invariably found in every human being. They are species - specific, responsible for the human genesis and form the human genophenotype. Our uniqueness as individuals variantly resides in the rest of our DNA (the nonprotein-coding DNA, about 98 percent of our genome) and in the histones (chemical modifications and compaction of nucleosomes). They constitute the epigenetic factors responsible for the formation of the epigenetic phenotype, which is variably different from one individual to another. They are individual - specific. Epigenetic factors variantly effect and regulate gene expression. For example, the craniofacial structure in mice is encoded in 300 protein-coding genes. The expression of these genes is regulated by 4000 different sequences of nonprotein-coding DNA called enhancers. Thus, the number of different forms of the craniofacial structure that might develop in mice is 300 exponentiated 4000 epiphenotypes. Other than enhancers, there are the mobile elements of DNA, dsRNA-coding DNA, chemical modification of DNA (e.g., methylation), and so forth. 2. Mind exclusively exists in man as an emergent phenomenon. 3. All scientific data presented in the Book are entirely intended to reflect, to explain, or to prove the Two Concepts rather than to discuss their significances and originalities. The interdisciplinarity of the Book offers a unique opportunity for understanding how astrophysics, quantum mechanics, thermodynamics, and biology are interrelated. Hani K. Rizk

Mapping and Sequencing the Human Genome Feb 27 2023 There is growing enthusiasm in the scientific community about the prospect of mapping and sequencing the human genome, a monumental project that will have far-reaching consequences for medicine, biology, technology, and other fields. But how will such an effort be organized and funded? How will we develop the new technologies that are needed? What new legal, social, and ethical questions will be raised? Mapping and Sequencing the Human Genome is a blueprint for this proposed project. The authors offer a highly readable explanation of the technical aspects of genetic mapping and sequencing, and they recommend specific interim and long-range research goals, organizational strategies, and funding levels. They also outline some of the legal and social questions that might arise and urge their early consideration by policymakers.

The Double Helix Aug 29 2020 The classic personal account of Watson and Crick's groundbreaking discovery of the structure of DNA, now with an introduction by Sylvia Nasar, author of A Beautiful Mind. By identifying the structure of DNA, the molecule of life, Francis Crick and James Watson revolutionized biochemistry and won themselves a Nobel Prize. At the time, Watson was only twenty-four, a young scientist hungry to make his mark. His uncompromisingly honest account of the heady days of their thrilling sprint against other world-class researchers to solve one of science's greatest mysteries gives a dazzlingly clear picture of a world of brilliant scientists with great gifts, very human ambitions, and bitter rivalries. With humility unspoiled by false modesty, Watson relates his and Crick's desperate efforts to beat Linus Pauling to the Holy Grail of life sciences, the identification of the basic building block of life. Never has a scientist been so truthful in capturing in words the flavor of his work.

Human Population Genetics and Genomics Jul 08 2021 Human Population Genetics and Genomics provides researchers/students with knowledge on population genetics and relevant statistical approaches to help them become more effective users of modern genetic, genomic and statistical tools. In-depth chapters offer thorough discussions of systems of mating, genetic drift, gene flow and subdivided populations, human population history, genotype and phenotype, detecting selection, units and targets of natural selection, adaptation to temporally and spatially variable environments, selection in age-structured populations, and genomics and society. As human genetics and genomics research often employs tools and approaches derived from population genetics, this book helps users understand the basic principles of these tools. In addition, studies often employ statistical approaches and analysis, so an understanding of basic statistical theory is also needed. Comprehensively explains the use of population genetics and genomics in medical applications and research Discusses the relevance of population genetics and genomics to major social issues, including race and the dangers of modern eugenics proposals Provides an overview of how population genetics and genomics helps us understand where we came from as a species and how we evolved into who we are now

Scientific Frontiers in Developmental Toxicology and Risk Assessment Nov 24 2022 Scientific Frontiers in Developmental Toxicology and Risk Assessment reviews advances made during the last 10-15 years in fields such as developmental biology, molecular biology, and genetics. It describes a novel approach for how these advances might be used in combination with existing methodologies to further the understanding of mechanisms of developmental toxicity, to improve the assessment of chemicals for their ability to cause developmental toxicity, and to improve risk assessment for developmental defects. For example, based on the recent advances, even the smallest, simplest laboratory animals such as the fruit fly, roundworm, and zebrafish might be able to serve as developmental toxicological models for human biological systems. Use of such organisms might allow for rapid and inexpensive testing of large numbers of chemicals for their potential to cause developmental toxicity; presently, there are little or no developmental toxicity data available for the majority of natural and manufactured chemicals in use. This new approach to developmental toxicology and risk assessment will require simultaneous research on several fronts by experts from multiple scientific disciplines, including developmental toxicologists, developmental biologists, geneticists, epidemiologists, and biostatisticians.

Human Gene Evolution Dec 01 2020 Presents the principles of human gene evolution in a concise and easy to understand fashion. Uses examples of how evolutionary processes have molded present day genes, drawn from the evolution of humans and other primates, as well as from more primitive organisms. With increasing attention in this expanding area, this review forms a timely publication of our current knowledge of this important field. Structure and function in the human genome The evolution of gene structure Mutational mechanisms in evolution

Medical genetics 1 Aug 09 2021 Medical genetics encompasses many different areas, including the clinical practice of doctors, genetic counselors and nutritionists, clinical diagnostic laboratory activities and research on the causes and inheritance of genetic disorders. Examples of conditions that are within the scope of medical genetics include birth defects and dysmorphology, mental retardation, autism, mitochondrial disorders, skeletal dysplasia, connective tissue disorders, cancer genetics, teratogens and prenatal diagnosis. Medical genetics is becoming increasingly relevant for many common diseases. Overlaps with other medical specialties are beginning to emerge, as recent advances in genetics are revealing etiologies for neurological, endocrine, cardiovascular, pulmonary, ophthalmological, renal, psychiatric and dermatological diseases. Summary of the contents of this book: Genetic disorders: Classification

Chromosomal disorders Mitochondrial diseases: Mitochondrial genetics Proteopathy The human genome and the chromosomal base of inheritance Cancer cytogenetics The human genome and its chromosomes DNA structure: a brief summary Organization of human chromosomes Cell division The human karyotype Human gametogenesis and fertilization Importance and medical significance of Mitosis and Meiosis Structure and function of the human genome Genome Keys

Functional Analysis of the Human Genome Mar 24 2020 An excellent review of the relationship between structure and function in the human genome, and a detailed description of some of the important methodologies for unravelling the function of genes and genomic structures.

CRISPR People Jun 26 2020 What does the birth of babies whose embryos had gone through genome editing mean--for science and for all of us? In November 2018, the world was shocked to learn that two babies had been born in China with DNA edited while they were embryos--as dramatic a development in genetics as the cloning of Dolly the sheep was in 1996. In this book, Hank Greely, a leading authority on law and genetics, tells the fascinating story of this human experiment and its consequences. Greely explains what Chinese scientist He Jiankui did, how he did it, and how the public and other scientists learned about and reacted to this unprecedented genetic intervention.

Human Genetics and Genomics May 18 2022 This fourth edition of the best-selling textbook, Human Genetics and Genomics, clearly explains the key principles needed by medical and health sciences students, from the basis of molecular genetics, to clinical applications used in the treatment of both rare and common conditions. A newly expanded Part 1, Basic Principles of Human Genetics, focuses on introducing the reader to key concepts such as Mendelian principles, DNA replication and gene expression. Part 2, Genetics and Genomics in Medical Practice, uses case scenarios to help you engage with current genetic practice. Now featuring full-color diagrams, Human Genetics and Genomics has been rigorously updated to reflect today's genetics teaching, and includes updated discussion of genetic risk assessment, "single gene" disorders and therapeutics. Key learning features include: Clinical snapshots to help relate science to practice 'Hot topics' boxes that focus on the latest developments in testing, assessment and treatment 'Ethical issues' boxes to prompt further thought and discussion on the implications of genetic developments 'Sources of information' boxes to assist with the practicalities of clinical research and information provision Self-assessment review questions in each chapter Accompanied by the Wiley E-Text digital edition (included in the price of the book), Human Genetics and Genomics is also fully supported by a suite of online resources at www.korfgenetics.com, including: Factsheets on 100 genetic disorders, ideal for study and exam preparation Interactive Multiple Choice Questions (MCQs) with feedback on all answers Links to online resources for further study Figures from the book available as PowerPoint slides, ideal for teaching purposes The perfect companion to the genetics component of both problem-based learning and integrated medical courses, Human Genetics and Genomics presents the ideal balance between the bio-molecular basis of genetics and clinical cases, and provides an invaluable overview for anyone wishing to engage with this fast-moving discipline.

Genomics Apr 17 2022 Written by the successful author team of Sandy Primrose and Richard Twyman, Genomics: Applications in Human Biology is a topical book showing how the new science of genomics is adding impetus to the advances in human health provided by biotechnology. Written to provide the necessary overview of the subject, covering technological developments, applications and (where necessary) the ethical implications. Divided into three sections, the first section introduces the role of biotechnology and genomics in medicine and sets out some of the technological advances that have been the basis of recent medical breakthroughs. The second section takes a closer look at how biotechnology and genomics are influencing the prevention and treatment of different categories of disease. Finally the contribution of biotechnology and genomics to the development of different types of therapy is described, including conventional drugs, recombinant proteins and gene/cell therapies. References to appropriate sections in other two popular books, authored by Sandy Primrose and Richard Twyman, are included - Principles of Gene Manipulation and Principles of Gene Analysis and Genomics. Features several categories of boxed text, including history boxes (describing the origins and development of particular technologies or treatments), molecular boxes (featuring the molecular basis of diseases or treatments in more detail) and ethic boxes (which discusses the ethical implications of technology development and new therapies).

The Human Genome Project Jul 28 2020 Seminar paper from the year 2012 in the subject Biology - Miscellaneous, grade: 1,0, University of Ulm, course: Bioethik, language: English, abstract: The Human Genome Project (HGP), founded in 1990, was a multinational project with the aim to sequence the entire human genome. Besides, its objectives included the generation of high resolution linkage and physical maps of the human chromosomes as well as the identification of disease causing genes. In addition, the HGP's key goals also included addressing the ethical, legal, and social issues (ELSI) that may arise from the increasing the availability of genetic information, thereby representing the world's largest bioethical program. This work adresses the most challenging ELSI concerns in detail and gives an overview about the state of research on the human genome.

Human Molecular Genetics May 06 2021 Human Molecular Genetics has been carefully crafted over successive editions to provide an authoritative introduction to the molecular aspects of human genetics, genomics and cell biology. Maintaining the features that have made previous editions so popular, this fifth edition has been completely updated in line with the latest developments in the field. Older technologies such as cloning and hybridization have been merged and summarized, coverage of newer DNA sequencing technologies has been expanded, and powerful new gene editing and single-cell genomics technologies have been added. The coverage of GWAS, functional genomics, stem cells, and disease modeling has been expanded. Greater focus is given to inheritance and variation in the context of populations and on the role of epigenetics in gene regulation. Key features: Fully integrated approach to the molecular aspects of human genetics, genomics, and cell biology Accessible text is supported and enhanced throughout by superb artwork illustrating the key concepts and mechanisms Summary boxes at the end of each chapter provide clear learning points Annotated further reading helps readers navigate the wealth of additional information in this complex subject and provides direction for further study Reorganized into five sections for improved access to related topics Also new to this edition - brand new chapter on evolution and anthropology from the authors of the highly acclaimed Human Evolutionary Genetics A proven and popular textbook for upper-level undergraduates and graduate students, the new edition of Human Molecular Genetics remains the 'go-to' book for those studying human molecular genetics or genomics courses around the world.

A Guide to Human Gene Therapy May 26 2020 1. Non-viral gene therapy / Sean M. Sullivan -- 2. Adenoviral vectors / Stuart A. Nicklin and Andrew H. Baker -- 3. Retroviral vectors and integration analysis / Cynthia C. Bartholomae [und weitere] -- 4. Lentiviral vectors / Janka Matrai, Marinee K.L. Chuah and Thierry VandenDriessche -- 5. Herpes simplex virus vectors / William F. Goins [und weitere] -- 6. Adeno-Associated Viral (AAV) vectors / Nicholas Muzyczka -- 7. Regulatory RNA in gene therapy / Alfred. S. Lewin -- 8. DNA integrating vectors (Transposon, Integrase) / Lauren E. Woodard and Michele P. Calos -- 9. Homologous recombination and targeted gene modification for gene therapy / Matthew Porteus -- 10. Gene switches for pre-clinical studies in gene therapy / Caroline Le Guiner [und weitere] -- 11. Gene therapy for central nervous system disorders / Deborah Young and Patricia A. Lawlor -- 12. Gene therapy of hemoglobinopathies / Angela E. Rivers and Arun Srivastava -- 13. Gene therapy for primary immunodeficiencies / Aisha Sauer, Barbara Cassani and Alessandro Aiuti -- 14. Gene therapy for hemophilia / David Markusic, Babak Moghimi and Roland Herzog -- 15. Gene therapy for obesity and diabetes / Sergei Zolotukhin and Clive H. Wasserfall -- 16. Gene therapy for Duchenne muscular dystrophy / Takashi Okada and Shin'ichi Takeda -- 17. Cancer gene therapy / Kirsten A.K. Weigel-Van Aken -- 18. Gene therapy for autoimmune disorders / Daniel F. Gaddy, Melanie A. Ruffner and Paul D. Robbins -- 19. Gene therapy for inherited metabolic storage diseases / Cathryn Mah -- 20. Retinal diseases / Shannon E. Boye, Sanford L. Boye and William W. Hauswirth -- 21. A brief guide to gene therapy treatments for pulmonary diseases / Ashley T. Martino, Christian Mueller and Terence R. Flotte -- 22. Cardiovascular disease / Darin J. Falk, Cathryn S. Mah and Barry J. Byrne

Human Genes and Genomes Dec 25 2022 In the nearly 60 years since Watson and Crick proposed the double helical structure of DNA, the molecule of heredity, waves of discoveries have made genetics the most thrilling field in the sciences. The study of genes and genomics today explores all aspects of the life with relevance in the lab, in the doctor's office, in the courtroom and even in social relationships. In this helpful guidebook, one of the most respected and accomplished human geneticists of our time communicates the importance of genes and genomics studies in all aspects of life. With the use of core concepts and the integration of extensive references, this book provides students and professionals alike with the most in-depth view of the current state of the science and its relevance across disciplines. Bridges the gap between basic human genetic understanding and one of the most promising avenues for advances in the diagnosis, prevention and treatment of human disease. Includes the latest information on diagnostic testing, population screening, predicting disease susceptibility, pharmacogenomics and more Explores ethical, legal, regulatory and economic aspects of genomics in medicine. Integrates historical (classical) genetics approach with the latest discoveries in structural and functional genomics

In Silico Detection of Genes Regulated by Repressor Element 1 (RE1) in the Human Genome Apr 24 2020

Human Genes and Neoliberal Governance Feb 03 2021 Original and interdisciplinary, this is the first book to explore the relationship between a neoliberal mode of governance and the so-called genetic revolution. Looking at the knowledge-power relations in the post-genomic era and addressing the pressing issues of genetic privacy and discrimination in the context of neoliberal governance, this book demonstrates and explains the mechanisms of mutual production between biotechnology and cultural, political, economic and legal frameworks. In the first part Antoinette Rouvroy explores the social, political and economic conditions and consequences of this new 'perceptual regime'. In the second she pursues her analysis through a consideration of the impact of 'geneticization' on political support of the welfare state and on the operation of private health and life insurances. Genetics and neoliberalism, she argues, are complicit in fostering the belief that social and economic patterns have a fixed nature beyond the reach of democratic deliberation, whilst the characteristics of individuals are unusually plastic, and within the scope of individual choice and responsibility. This book will be of interest to all students of law, sociology and politics.

The History and Geography of Human Genes Jun 07 2021 Hailed as a breakthrough in the understanding of human evolution, The History and Geography of Human Genes offers the first full-scale reconstruction of where human populations originated and the paths by which they spread throughout the world. By mapping the worldwide geographic distribution of genes for over 110 traits in over 1800 primarily aboriginal populations, the authors charted migrations and devised a clock by which to date evolutionary history. This monumental work is now available in a more affordable paperback edition without the myriad illustrations and maps, but containing the full text and partial appendices of the authors' pathbreaking endeavor.

SUMO-1 Mapping in the Human Genome Andits Implications for Transcription Control Mar 04 2021 SUMOylation, a post-translational modification with SUMO proteins covalently conjugated to a variety of proteins, regulates a range of cellular processes, including cell proliferation and maintenance of genome stability. In this study, we investigated how SUMO-1 functions as a chromatin mark on the human genome during cell cycle progression by ChIP-seq approach. Surprisingly, despite the known repressive role of SUMOylation on histones, we found that SUMO-1 localizes to the promoters of constitutively active genes involved in protein translation and proliferation during interphase. For example, ribosomal protein genes; and SUMO-1 marks on these promoters were absent during mitosis. In addition, SUMO-1 association on the promoters recruits RNAPII, and depletion of SUMO-1 leads to down regulation of those ribosomal protein genes, suggesting a positive role of SUMO-1 in gene activation. To further elucidate how SUMOylation regulates transcription process related to protein synthesis, we identified that SUMO-1 marks the promoters via the Scaffold Associated Factor B (SAFB) protein. The results showed that SAFB is SUMOylated, and depletion of SAFB caused the decrease of SUMO-1 marks on the promoters of those housekeeping genes transcribed by RNAPII. In addition, depletion of SAFB decreased the splicing of the mRNAs and disrupted the organization of Cajal body, which is important for snRNP and snoRNP biogenesis. All these findings suggested that SUMOylation plays an important role in the regulatory process for transcription initiation and splicing of mRNA of ribosomal protein genes.

The Selfish Gene Jan 14 2022 Science need not be dull and bogged down by jargon, as Richard Dawkins proves in this entertaining look at evolution. The themes he takes up are the concepts of altruistic and selfish behaviour; the genetical definition of selfish interest; the evolution of aggressive behaviour; kinshiptheory; sex ratio theory; reciprocal altruism; deceit; and the natural selection of sex differences. 'Should be read, can be read by almost anyone. It describes with great skill a new face of the theory of evolution.' W.D. Hamilton, Science

Molecular Biology of the Cell Sep 22 2022

The Gene Feb 15 2022 ** NEW YORK TIMES NUMBER ONE BESTSELLER ** The Gene is the story of one of the most powerful and dangerous ideas in our history from the author of The Emperor of All Maladies. The story begins in an Augustinian abbey in 1856, and takes the reader from Darwin's groundbreaking theory of evolution, to the horrors of Nazi eugenics, to present day and beyond - as we learn to "read" and "write" the human genome that unleashes the potential to change the fates and identities of our children. Majestic in its scope and ambition, The Gene provides us with a definitive account of the epic history of the quest to decipher the master-code that makes and defines humans – and paints a fascinating vision of both humanity's past and future. For fans of Sapiens by Yuval Noah Harari, A Brief History of Time by Stephen Hawking and Being Mortal by Atul Gwande. 'Siddhartha Mukherjee is the perfect person to guide us through the past, present, and future of genome science' Bill Gates 'A thrilling and comprehensive account of what seems certain to be the most radical, controversial and, to borrow from the subtitle, intimate science of our time...Read this book and steel yourself for what comes next' Sunday Times

From Biotechnology to Genomes Nov 19 2019 Aimed at scientists and non-specialised readers alike, this book retraces the source of national and international biotechnology programmes by examining the origins of biotechnology and its political and economic interpretation by large nations. With a foreword by Andr, Goffeau, who initiated the European Yeast Genome Project, the book describes the achievements of the first genetic and physical maps, as well as the political and scientific genesis of the American Human Genome Project. Following these advances, the author discusses the European biotechnology strategy, the birth and implementation of European biotechnology programmes and the yeast genome project. After a detailed description of scientific policy and administrative, technical and scientific achievements, the principal stages of the yeast project and its major benefits are discussed. This enables the reader to obtain a panoramic view of this developing discipline at the dawn of the twenty-first century, as well as a better knowledge of the means deployed at international level. The conclusion gives a very detailed account of the genesis and early stages of this new scientific and technological field called genomics which appears to be a key component of modern industry. By using an epistemological analysis, the conclusion poses the problem of a new representation of life and critically appraises the limitations and deficiencies.

Genomic Medicine Apr 05 2021 Preceded by Genomics and clinical medicine / edited by Dhavendra Kumar. [First edition]. 2008.

Molecular Biology of the Gene Oct 11 2021 Now completely up-to-date with the latest research advances, the Seventh Edition retains the distinctive character of earlier editions. Twenty-two concise chapters, co-authored by six highly distinguished biologists, provide current, authoritative coverage of an exciting, fast-changing discipline.

Heritable Human Genome Editing Sep 10 2021 Heritable human genome editing - making changes to the genetic material of eggs, sperm, or any cells that lead to their development, including the cells of early embryos, and establishing a pregnancy - raises not only scientific and medical considerations but also a host of ethical, moral, and societal issues. Human embryos whose genomes have been edited should not be used to create a pregnancy until it is established that precise genomic changes can be made reliably and without introducing undesired changes - criteria that have not yet been met, says Heritable Human Genome Editing. From an international commission of the U.S. National Academy of Medicine, U.S. National Academy of Sciences, and the U.K.'s Royal Society, the report considers potential benefits, harms, and uncertainties associated with genome editing technologies and defines a translational pathway from rigorous preclinical research to initial clinical uses, should a country decide to permit such uses. The report specifies stringent preclinical and clinical requirements for establishing safety and efficacy, and for undertaking long-term monitoring of outcomes. Extensive national and international dialogue is needed before any country decides whether to permit clinical use of this technology, according to the report, which identifies essential elements of national and international scientific governance and oversight.

Evolution of the Human Genome I Jun 19 2022 This book reviews the human genome from an evolutionary perspective. No such book has ever been published before, although there are many books on human genomes. There are two parts in this book: Overview of the Human Genome (Part I) and The Human Genome Viewed through Genes (Part II). In Part I, after a brief review of human evolution and the human genome (by Naruya Saitou), chapters on rubbish or junk DNA (by Dan Graur), GC content heterogeneity (by Satoshi Oota), protein coding and RNA coding genes (by Tadashi Imanishi), duplicated genes (by Takashi Kitano), recombinations (by Montanucci and Bertranpetit), and copy number variations including microsatellites (by Naoko Takezaki) are discussed. Readers can obtain various new insights on the human genome from this part. In Part II, genes in X and Y chromosomes (by Yoko Satta and others), HLA genes (by Timothy A. Jinam), opsin genes (by Shoji Kawamura and Amanda D. Melin), genes related to phenotypic variations (by Ryosuke Kimura), transcription factors (by Mahoko Takahashi and So Nakagawa), diabetes-related genes (by Ituro Inoue), disease genes in general (by Ituro Inoue and Hirofumi Nakaoka), and microbial genomes (by Chaochun Wei) are discussed. The human genome sequences were determined in 2004, and after more than 10 years we are now beginning to understand the human genome from an evolutionary point of view. This book furnishes readers with a good summary of current research in the field.

Human Genome Editing Feb 21 2020 Genome editing is a powerful new tool for making precise alterations to an organism's genetic material. Recent scientific advances have made genome editing more efficient, precise, and flexible than ever before. These advances have spurred an explosion of interest from around the globe in the possible ways in which genome editing can improve human health. The speed at which these technologies are being developed and applied has led many policymakers and stakeholders to express concern about whether appropriate systems are in place to govern these technologies and how and when the public should be engaged in these decisions. Human Genome Editing considers important questions about the human application of genome editing including: balancing potential benefits with unintended risks, governing the use of genome editing, incorporating societal values into clinical applications and policy decisions, and respecting the inevitable differences across nations and cultures that will shape how and whether to use these new technologies. This report proposes criteria for heritable germline editing, provides conclusions on the crucial need for public education and engagement, and presents 7 general principles for the governance of human genome editing.

Exons, Introns, and Talking Genes Dec 13 2021 This book tells the story behind one of the most difficult--and ultimately rewarding--scientific endeavors in modern history: a multibillion-dollar international undertaking that will revolutionize our understanding of the human body. Exons, Introns, and Talking Genes is a scientist's view of the Human Genome Project. Wills explains the science as no layperson could, telling the story of the scientists involved in the project, the biomedical breakthroughs that led up to it, and how the new information it generates will change the way we understand and treat disease. Ever since Watson and Crick discovered the structure of DNA, scientists have been trying to "read" the human genetic code locked in the millions and millions of bases that make up DNA. But over the past thirty years, as many new questions have been raised as answered. Why, for example, do we carry long, repeating stretches of DNA that play no discernible role in heredity and that are currently referred to simply as "junk DNA"? Is it really true that much of human DNA is actually viral DNA-remnants, that is, of past infections? And why is most of the DNA that codes for genes quickly removed as useless "introns," leaving only the tiny but key "exons"? When completed in the next century, the Human Genome Project will have determined every gene sequence in the human body, illuminating for scientists some of the outstanding problems in human biology: the genesis of cancer, how embryos and fetuses develop, the mechanisms of aging, and the origin of mutations.

Who We Are and How We Got Here Oct 31 2020 The past few years have witnessed a revolution in our ability to obtain DNA from ancient humans. This important new data has added to our knowledge from archaeology and anthropology, helped resolve long-existing controversies, challenged long-held views, and thrown up remarkable surprises. The emerging picture is one of many waves of ancient human migrations, so that all populations living today are mixes of ancient ones, and often carry a genetic component from archaic humans. David Reich, whose team has been at the forefront of these discoveries, explains what genetics is telling us about ourselves and our complex and often surprising ancestry. Gone are old ideas of any kind of racial âpurity.' Instead, we are finding a rich variety of mixtures. Reich describes the cutting-edge findings from the past few years, and also considers the sensitivities involved in tracing ancestry, with science sometimes jostling with politics and tradition. He brings an important wider message: that we should recognize that every one of us is the result of a long history of migration and intermixing of ancient peoples, which we carry as ghosts in our DNA. What will we discover next?

Genome: The Autobiography of a Species in 23 Chapters Jul 20 2022 The most important investigation of genetic science since The Selfish Gene, from the author of the critically acclaimed and best-selling The Red Queen and The Origins of Virtue.

Gene Expression and Phenotypic Traits Oct 19 2019 Gene expression is the most fundamental level at which genotype gives rise to phenotype, which is an obvious, observable, and measurable trait. Phenotype is dependent on genetic makeup of the organism and influenced by environmental conditions. This book explores the significance, mechanism, function, characteristic, determination, and application of gene expression and phenotypic traits.

The Human Genome Nov 12 2021 Significant advances in our knowledge of genetics were made during the twentieth century but in the most recent decades, genetic research has dramatically increased its impact throughout society. Genetic issues are now playing a large role in health and public policy, and new knowledge in this field will continue to have significant implications for individuals and society. Written for the non-majors human genetics course, Human Genetics, 3E will increase the genetics knowledge of students who are learning about human genetics for the first time. This thorough revision of the best-selling Human Genome,2E includes entirely new chapters on forensics, stem cell biology, bioinformatics, and societal/ethical issues associated with the field. New special features boxes make connections between human genetics and human health and disease. Carefully crafted pedagogy includes chapter-opening case studies that set the stage for each chapter; concept statements interspersed throughout the chapter that keep first-time students focused on key concepts; and end-of-chapter questions and critical thinking activities. This new edition will contribute to creating a genetically literate student population that understands basic biological research, understands elements of the personal and health implications of genetics, and participates effectively in public policy issues involving genetic information . Includes topical material on forensics, disease studies, and the human genome project to engage non-specialist students Full, 4-color illustration program enhances and reinforces key concepts and themes Uniform organization of chapters includes interest boxes that focus on human health and disease, chapter-opening case studies, and concept statements to engage non-specialist readers