Human Molecular Genetics 3rd Edition Cell And Molecular Biology In Action 3rd Third Edition By Sudbery Peter 2010

An Introduction to Human Molecular Genetics Second Edition Jack J. Pasternak The Second Edition of this internationally acclaimed text expandsits coverage of the molecular genetics of inherited human diseaseswith the latest research findings and discoveries. Using a unique,systems-based approach, the text offers readers a thoroughexplanation of the gene discovery process and how defective genesare linked to inherited disease states in major organ and tissuesystems. All the latest developments in functional genomics,proteomics, and microarray technology have been thoroughlyincorporated into the text. The first part of the text introduces readers to the fundamentalsof cytogenetics and Mendelian genetics. Next, techniques andstrategies for gene manipulation, mapping, and isolation areexamined. Readers will particularly appreciate the text'sexceptionally thorough and clear explanation of genetic mapping.The final part features unique coverage of the molecular geneticsof distinct biological systems, covering muscle, neurological, eye,cancer, and mitochondrial disorders. Throughout the text, helpfulfigures and diagrams illustrate and clarify complex material. Readers familiar with the first edition will recognize the text'ssame lucid and engaging style, and will find a wealth of new andexpanded material that brings them fully up to date with a currentunderstanding of the field, including: * New chapters on complex genetic disorders, genomic imprinting,and human population genetics * Expanded and fully revised section on clinical genetics, coveringdiagnostic testing, molecular screening, and varioustreatments This text is targeted at upper-level undergraduate students,graduate students, and medical students. It is also an excellentreference for researchers and physicians who need a clinicallyrelevant reference for the molecular genetics of inherited humandiseases.

This updated edition presents the latest, most authoritative cancer management recommendations in the famous fast-access Washington Manual outline format. Reorganized into three major sections, this comprehensive text covers the principles of cytotoxic therapy, clinical research, and more.

“Remarkably comprehensive, this set contains articles dealing with both current aspects and historical development of human genomic analysis, interpreted broadly.” CHOICE “An excellent addition to library collections supporting genome research; recommended for academic libraries.” LIBRARY JOURNAL The Encyclopedia of the Human Genome (EHG) is devoted to the scientific basis of human genetics and genomics research and its ethical, philosophical, and commercial ramifications. Presenting a comprehensive and rigorously detailed overview of current research and its groundbreaking applications, this major reference work examines many peripheral topics surrounding the field such as law, ethics, medicine and public health, history, religion and industry. The Encyclopedia of the Human Genome (EHG) includes: 5 Volumes 5,000 pages – 3 million words 1,047 original, peer-reviewed articles Contributions from 1,400 of the world’s leading experts 1,500 illustrations

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The VitalBook e-book version of Genomes 3 is only available in the US and Canada at the present time. To purchase or rent please visit http://store.vitalsource.com/show/9780815341383 Covering molecular genetics from the basics through to genome expression and molecular phylogenetics, Genomes 3is the latest edition of this pioneering textbook. Updated to incorporate the recent major advances, Genomes 3 is an invaluable companion for any undergraduate throughout their studies in molecular genetics. Genomes 3 builds on the achievements of the previous two editions by putting genomes, rather than genes, at the centre of molecular genetics teaching. Recognizing that molecular biology research was being driven more by genome sequencing and functional analysis than by research into genes, this approach has gathered momentum in recent years.

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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.

Within the last decade, much progress has been made in the analysis and diagnosis of human inherited disease, and in the characterization of the underlying genes and their associated pathological lesions.

This is a concise overview of a complex and fast moving field. The text explains amongst many things the special problems encountered in human genome analysis. Boxed case studies are incorporated to help student comprehension of this topic.

This issue of Clinics in Laboratory Medicine, Guest Edited by Anthony Odibo and David Krantz, will feature article topics such as: Screening for Chromosomal abnormalities; Cystic fibrosis screening; The role of second-trimester screening, in the post-first trimester screening era; Modifying risk for Aneuploidy with second-trimester ultrasound after a positive serum screen; Cost-effectiveness of Down syndrome screening paradigms; Biochemical and biophysical screening for the risk of Preterm delivery; Pre-implantation genetic diagnosis; Prenatal testing for infectious disease, Thrombophilias, Preeclampsia, Neural Tube Defects; Management of Multiple Pregnancy; Genetic Counseling Issues in Down syndrome Screening; First Trimester Ultrasound Markers; Quality Control of Nuchal Translucency; Clinical Implications of First Trimester Screening; Adverse Pregnancy Outcomes after Positive Screening; First Trimester Combined Screening: Instant Risks Approach.

The discovery in the late 1940's that sickle cell anemia is a "molecular disease" of hemoglobin was the crucial advance that gave birth to the scientific discipline of human molecular genetics. In subsequent years, with the continued expansion of knowledge about the biology and genetics of the hemoglobins, and particularly as a result of the characterization of the very large numbers of globin gene mutations, the human hemoglobin system has remained as the premier model of gene expression at the molecular level in man. With the recent explosion of new information about the genetic properties of the hemoglobins, it appears inevitable that this gene system will continue to occupy a unique position in human molecular genetics for many years in the future. Hemoglobin genetics has also recently come of age as a diagnostic and clinical discipline. The heightening of public awareness in recent years about sickle cell disease, thalassemia, and other inherited disorders has brought increasing demands for carrier detection services as well as for genetic counseling and education. The more recent development of prac tical and reliable methods for the antenatal diagnosis of hemoglobin dis orders has further increased the scope of clinical hemoglobin genetics, and it can be anticipated that these potent diagnostic techniques will have increasing application in the years ahead.

Rev. ed. of: Human molecular genetics 3 / Tom Strachan and Andrew Read. 3rd ed. c2004.

Following the well-received first edition, the Drug Abuse Handbook, Second Edition is a thorough compendium of the knowledge of the pharmacological, medical, and legal aspects of drugs. The book examines criminalistics, pathology, pharmacokinetics, neurochemistry, treatment, as well as drugs and drug testing in the workplace and in sports, and the ethical, legal, and practical issues involved. Dr. Karch gathers contributions from 80 leading experts in their respective fields to update and revise this second edition with more than 40 percent new material. New topics include genetic testing in drug death investigation, the neurochemistry of nicotine and designer amphetamines, genetic doping in sports, and the implications of the Daubert ruling on the admissibility of scientific evidence in federal court. Packed with the latest information in an easily accessible format, the book includes tables of all Scheduled Drugs, methods of Drug Quantitative Analysis, and a glossary of forensic toxicology terms. Vivid pictures and diagrams illustrate the pathological effects of drugs and the chemical make-up and breakdown of abused drugs. It includes more than 6000 references to the best sources in medicine, pharmacology, and the law. This book addresses specific problems in drug testing, drug-related medical emergencies, and the physical, neurochemical, and sociological phenomenon of addiction. With unparalleled detail and the highest level of authoritative information, The Drug Abuse Handbook, Second Edition is the definitive resource for drug related issues. Historians and social scientists will likewise find this book an important foundation for future detailed studies, which are urgently needed."--BOOK JACKET.

The book is primarily designed for B.Sc. and M.Sc. students of Biotechnology, Botany, Plant Biotechnology, Plant Molecular Biology, Molecular Biology and Genetic Engineering as well as for those pursuing B.Tech. and M.Tech. in Biotechnology. It will also be of immense value to the research scholars and academics in the field. Though ample literature is available on this subject, still a textbook combining biotechnology and genetic engineering has always been in demand by the readers. Hence, with this objective, the authors have presented this compact yet comprehensive text to the students and the teaching fraternity, providing clear and concise understanding of the principles of biotechnology and genetic engineering. It has a special focus on tissue culture, protoplasm isolation and fusion, and transgenic plants in addition to the basic concepts and techniques of the subject. It gives sound knowledge of gene structure, manipulation and plant transformation vectors. KEY FEATURES • Combines knowledge of Plant Biotechnology and Genetic Engineering in a single volume. • Text interspersed with illustrative examples. • Graded questions and pedagogy, Multiple choice questions, Fill in the blanks, True-false, Short answer questions, Long answer questions and discussion problems in each chapter. • Clear, self-explanatory, and labelled diagrams. • Solutions to all MCQs in the respective chapters.

Principles of Proteomics, Second Edition, provides a concise and user-friendly introduction to the diverse technologies used for the large-scale analysis of proteins, as well as their applications, and their impact in areas such as drug discovery, agriculture, and the fight against disease. Proteomics is a fast-advancing field in which researchers seek to capture all the proteins in the cell and characterize them in ever more detail. Principles of Proteomics has been fully updated to reflect the most recent developments in the field without losing its focus on the underlying principles. With worked examples, case studies profiling both established and emerging technologies, and further reading lists for each chapter, Principles of Proteomics is an ideal introduction for students, researchers and those working in the industry.

Professors Tom Strachan & Andrew Read awarded the Education Award 2007 of the ESHG for their outstanding contribution to the dispersal of knowledge of modern human molecular genetics among students and professionals. Following the completion of the Human Genome Project the content and organization of the third edition of Human Molecular Genetics has been thoroughly revised. * Part One (Chapters 1-7) covers basic material on DNA structure and function, chromosomes, cells and development, pedigree analysis and the basic techniques used in the laboratory. * Part Two (Chapters 8-12) discusses the various genome sequencing projects and the insights they provide into the

organisation, expression, variation and evolution of our genome. * Part Three (Chapters 13-18) focuses on mapping, identifying and diagnosing the genetic causes of mendelian and complex diseases and cancer. * Part Four (Chapters 19-21) looks at the wider horizons of functional genomics, proteomics, bioinformatics, animal models and therapy. There are new chapters on cells and development and on functional genomics. The sections on complex diseases have been completely rewritten and reorganized, as has the chapter on Genome Projects. Other changes include a new section on molecular phylogenetics (Chapter 12) and the introduction of 'Ethics Boxes' to discuss some of the implications of the new knowledge. Virtually every page has been revised and updated to take account of the stunning developments of the past four years since the publication of the last edition of Human Molecular Genetics. Features: * Integration of Human Genome Project data throughout the book * Two new chapters 'Cells and Development' (Chapter 3) and 'Beyond the Genome Project: Functional Genomics, Proteomics and Bioinformatics' (Chapter 19) * Completely rewritten and reorganised coverage of complex disease genetics * Increased emphasis on gene function and on applications of genetic knowledge, including ethical issues * More prominence given to novel approaches to treating disease, such as cell-based therapies, pharmacogenomics, and personalised medicine * Special topic boxes that include detailed coverage of ethical, legal and social issues, including eugenics, genetic testing and discrimination, germ-line gene therapy and genetic enhancement, and human cloning * Contains two indices: a general index and one that contains names of diseases and disorders Supplements: Art of HMG3 (CD-ROM) 0-8153-4183-0: £34.00

In the 1960's and 1970's, personality and mental illness were conceptualized in an intertwined psychodynamic model. Biological psychiatry for many un-weaved that model and took mental illness for psychiatry and left personality to psychology. This book brings personality back into biological psychiatry, not merely in the form of personality disorder but as part of a new intertwined molecular genetic model of personality and mental disorder. This is the beginning of a new conceptual paradigm!! This breakthrough volume marks the beginning of a new era, an era made possible by the electrifying pace of discovery and innovation in the field of molecular genetics. In fact, several types of genome maps have already been completed, and today's experts confidently predict that we will have a smooth version of the sequencing of the human genome -- which contains some 3 billion base pairs Such astounding progress helped fuel the development of this remarkable volume, the first ever to discuss the brand-new -- and often controversial -- field of molecular genetics and the human personality. Questioning, critical, and strong on methodological principles, this volume reflects the point of view of its 35 distinguished contributors -- all pioneers in this burgeoning field and themselves world-class theoreticians, empiricists, clinicians, developmentalists, and statisticians. For students of psychopathology and others bold enough to hold in abeyance their understandable misgivings about the conjunction of "molecular genetics" and "human personality," this work offers an authoritative and up-to-date introduction to the molecular genetics of human personality. The book, with its wealth of facts, conjectures, hopes, and misgivings, begins with a preface by world-renowned researcher and author Irving Gottesman. The authors masterfully guide us through Chapter 1, principles and methods; Chapter 4, animal models for personality; and Chapter 11, human intelligence as a model for personality, laying the groundwork for our appreciation of the remaining empirical findings of human personality qua personality. Many chapters (6, 7, 9, 11, and 13) emphasize the neurodevelopmental and ontogenetic aspects of personality, with a major emphasis on the receptors and transporters for the neurotransmitters dopamine and serotonin. Though these neurotransmitters are a rational starting point now, the future undoubtedly will bring many other candidate genes that today cannot even be imagined, given our ignorance of the genes involved in the prenatal development of the central nervous system. Chapter 3 provides an integrative overview of the broad autism phenotype, and as such will be of special interest to child psychiatrists. Chapters 5, 8, and 10 offer enlightening information on drug and alcohol abuse. Chapter 14 discusses variations in sexuality. Adding balance and mature perspectives on how all the chapters complement and sometimes challenge one another are Chapter 2, written by a major figure in the renaissance of the relevance to psychopathology of both genetics and personality; Chapters 15-17, informed critical appraisals citing concerns and cautions about premature applications of this information in the policy arena; and Chapter 18, a judicious contemplation by the editors themselves of this promising -- and, to some, alarming -- field. Clear and meticulously researched, this eminently satisfying work is written to introduce the subject to postgraduate students just beginning to develop their research skills, to interested psychiatric practitioners, and to informed laypersons with some scientific background.

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A remarkable achievement by a single author...concise but informative...No geneticist or physician interested in genetic diseases should be without a copy of this remarkable edition. --American Journal of Medical GeneticsMore than ever, a solid understanding of genetics is a fundamental element of all medical and scientific educational programs, across virtually all disciplines. And the applications--and implications--of genetic research are at the heart of current medical scientific debates. Completely updated and revised, The Color Atlas of Genetics is an invaluable guide for students of medicine and biology, clinicians, and anyone else interested in this rapidly evolving field. The latest edition of this highly praised atlas retains several popular features, such as the accessible layout and logical structure, in addition to many novel features and 20 completely new color plates on new topics, including: Cell-to-cell communication, including important signaling and metabolic pathways Taxonomy of living organisms (tree of life) Epigenetic modifications in chromatin Apoptosis RNA interference (RNAi) Comparative genomic hybridization Origins of cancer Principles of gene and stem cell therapy, etc. With more than 200 absorbing full-color plates concisely explained on facing pages, the atlas offers readers an easy-to-use, yet remarkably detailed guide to key molecular, theoretical, and medical aspects of genetics and genomics. Brief descriptions of numerous genetic diseases are included, with references for more detailed information.Readers will find that this incomparable book presents a comprehensive picture of the field from its fascinating history to its most advanced applications.

Originally published under the title: Genetics in medicine / James S. Thompson and Margaret W. Thompson.
This volume explores the epigenetic alterations and their association with various human cancers. Considering one of human cancer as an example, individual chapters are focused on defining the role of epigenetic regulators and underlying mechanisms in cancer growth and progression. Epigenetic alteration including DNA methylation, histone modification, nucleosome positioning and non-coding RNAs expression are involved in a complex network of regulating expression of oncogenes and tumor suppressor genes and constitute an important event of the multistep process of carcinogenesis. Recent advances in the understanding of the epigenetic regulation and detailed information of these epigenetic changes in various cancers provide new avenues of advancements in diagnostics, prognostics, and therapies of this highly fatal disease.
A concise, clear writing style and a detailed and rich coverage of topics are the reasons that students found the first edition of the book so engaging and useful.Riding on this wave, all chapters within the second edition of this popular book have been thoroughly updated and expanded, especially the human and animal materials. A wider range of animals is covered, including dogs and cats as well as farm animals. The use of cord blood for therapy, pre-implantation genetic diagnosis and animal cloning are also explored and dealt with./a
Volume 32 of Advances in Genetics: Incorporating Molecular Genetic Medicine focuses on important and fast moving subjects in modern human genetics and medicine. This volume also marks the new collaboration with Associate Editors Dr. Theodore Friedmann and Dr. Francesco Giannelli. Chapter 1 considers the potential effectiveness and consequences of gene therapy on subjects over time. Chapter 2 discusses recent research on Gaucher's disease, the first disorder to demonstrate the clinical benefits of enzyme replacement therapy. Chapter 3 describes current findings on diabetes, a disease difficult to conquer due to its variety and its genetic and environmental causes. The major forms of hemophilia and the need for alternative therapies are discussed in Chapter 4. Chapter 5 presents hypercholesterolemia as a model for understanding the causes and treatments of human diseases on a molecular level. Chapter 6 probes the basic genetic defects behind phenylketonuria, as well as the possibilities for genetic correction. Chapter 7 covers the fascinating terminal structures of human chromosomes. In the Foreword to Volume 32, Drs. Friedmann and Giannelli suggest: "Progress toward a thorough characterization of the human genome is stunningly rapid and exceeding many of its earliest expectations. Disease-related genes will be falling from the skies faster than we can understand them, and mechanisms responsible for the pathogenesis of disease will be illuminated more quickly and readily than ever before. "With comprehensive and timely reviews, Advances in Genetics incorporating Molecular Genetic Medicine offers with every volume further insight into this expanding field of medicine, supplementing the continued expert coverage of all other areas of genetics pioneered by Advances in Genetics. Key Features * Presents technical and historical overviews of molecular biology applied to disease detection, diagnosis, and treatment * Chronicles the continuing explosion of knowledge in molecular genetic medicine by highlighting current approaches to understanding human illness * Documents the revolution in human and molecular genetics leading to a new field of medicine * Volume 32 marks new collaboration with Associate Editors Dr. Theodore Friedmann and Dr. Francesco Giannelli
This text 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.
They mastermind our lives, shaping our features, our health, and our behavior, even in the sacrosanct realms of love and sex, religion, aging, and death. Yet we are the ones who house, perpetuate, and give the promise of immortality to these biological agents, our genetic gods. The link between genes and gods is hardly arbitrary, as the distinguished evolutionary geneticist John Avise reveals in this compelling book. In clear, straightforward terms, Avise reviews recent discoveries in molecular biology, evolutionary genetics, and human genetic engineering, and discusses the relevance of these findings to issues of ultimate concern traditionally reserved for mythology, theology, and religious faith. The book explains how the genetic gods figure in our development--not just our metabolism and physiology, but even our emotional disposition, personality, ethical leanings, and, indeed, religiosity. Yet genes are physical rather than metaphysical entities. Having arisen via an amoral evolutionary process--natural selection--genes have no consciousness, no sentient code of conduct, no reflective concern about the consequences of their actions. It is Avise's contention that current genetic knowledge can inform our attempts to answer typically religious questions--about origins, fate, and meaning. The Genetic Gods challenges us to make the necessary connection between what we know, what we believe, and what we embody. Table of Contents: Preface Prologue 1. The Doctrines of Biological Science 2. Geneses 3. Genetic Maladies 4. Genetic Beneficence 5. Strategies of the Genes 6. Genetic Sovereignty 7. New Lords of Our Genes? 8. Meaning Epilogue Notes Glossary Index Reviews of this book: Our genes, [Avise] says, are responsible not only for how we got here and exist day to day, but also for the core of our being--our personalities and morals. It is our genetic make-up that allows for and formulates our religious belief systems, he argues. Avise does not eschew spirituality but seeks a more informed, less confrontational approach between science and the pulpit. --Science News Reviews of this book: For the general scientific reader, the book is an excellent distillation of a broad and increasingly important field, a course of causation that cannot be ignored. From advising expectant parents to getting innocent people off death row, genetics increasingly dominates our lives. The sections on genetics are expertly written, particularly for those readers without in-depth knowledge. The author explains slowly and carefully just how genetics operates, using multiple metaphors. His genetic

discourse proceeds in a neighborly fashion, as one might tell stories while sitting in a rocking chair at a country store. He seems to be invigorated by genes and just can't wait to tell about them. --David W. Hodo, Journal of the American Medical Association Reviews of this book: As a whole, this book is quite informative and stimulating, and sections of it are beautifully written. Indeed, Professor Avise has a real gift for prose and scientific expositions, and I would suspect that he must be a formidable lecturer...At its core, [The Genetic Gods] is a survey, and a very nice one at that, of evolutionary genetics, the field of the author's major research interests. There is a strong sociobiological cast to the arguments, and the work and ideas of E. O. Wilson figure prominently. The presentation of evolutionary genetics is imbedded in a more general discussion of modern human and molecular genetics...However, this book is, most of all, a philosophical treatise that attempts, admittedly with the bias of a biologist, to examine the intersection of the fundamental premises of evolution and religion. Professor Avise has given us plenty to think about in this book [and]...it was a real pleasure to wrestle with the ideas he was presenting. I would suggest that other readers give it a try. --Charles J. Epstein, Trends in Genetics Reviews of this book: [Avise's] account of the role genes play in shaping the human condition is wholly involving, paying particular attention to issues of reproduction, aging and death. In addition to presenting ample biological information in a form accessible to the nonspecialist, Avise does a superb job of discussing many of the ethical implications that have arisen from our growing knowledge of human genetics. Just a few of the topics covered are genetic engineering, the patenting of life, genetic screening, abortion, human cloning, gene therapy and insurance-related controversies. --Publishers Weekly Reviews of this book: Avise explains thoroughly how evolution operates on a genetic level. His goal is to show that humans can look to this information as a way to answer fundamental questions of life instead of looking to traditional religious beliefs...Avise includes some very interesting discussions of ethical concerns related to genetic issues. --Eric D. Albright, Library Journal This is a splendid account of a subject that affects us all: the breathtaking increase in understanding of human genetics and the insight it provides into human evolution. John Avise speaks with authority of molecular evolutionary genetics and with affecting compassion of what it might mean. --Douglas J. Futuyma, State University of New York at Stony Brook The Genetic Gods is many things. It is a wonderful introduction to modern molecular biology, by a man who knows his subject backwards. It is a stimulating account of the ways in which genetics impinges on human nature--our thinking and our behavior. It is a remarkably level-headed and sympathetic account of the implications of our new findings for traditional and not-so-traditional issues in philosophy and religion. In an age of genetic counseling, cloning, construction of new life forms, the book is worth its weight in gold for this alone. But most of all, it is a huge amount of fun to read--you want to applaud or argue with the author on nigh every page. Highly recommended! --Michael Ruse, University of Guelph The Genetic Gods makes a valuable contribution to the on-going task of sorting out the implications of evolutionary biology and genetics for human self-understanding. Avise addresses, with authority and grace, the most consequential intellectual issues of our time. A challenging and insightful book. --Loyal Rue, Harvard University A wonderfully informative and engaging book. Avise offers a lucid, accessible primer on our genes, angelic and demonic, and examines religious and ethical issues, all too human, now confronted by genetic science. He makes a compelling case that anyone seeking to 'Know Thyself' should study the DNA molecular scriptures, our most ancient and universal legacy. --Dudley Herschbach, Harvard University, Nobel Laureate in Chemistry

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

Through six editions, Thompson & Thompson's Genetics in Medicine has been a well-established favorite textbook on this fascinating and rapidly evolving field, integrating the classic principles of human genetics with modern molecular genetics to help you understand a wide range of genetic disorders. The 7th edition incorporates the latest advances in molecular diagnostics, the Human Genome Project, and much more. More than 240 dynamic illustrations and high-quality photos help you grasp complex concepts more easily. This title includes additional digital media when purchased in print format. For this digital book edition, media content is not included. Acquire the state-of-the-art knowledge you need on the latest advances in molecular diagnostics, the Human Genome Project, pharmacogenetics, and bio-informatics. Better understand the relationship between basic genetics and clinical medicine with a variety of clinical case studies. Recognize a wide range of genetic disorders with visual guidance from more than 240 dynamic illustrations and high-quality photos. This title includes additional digital media when purchased in print format. For this digital book edition, media content is not included.

Molecular Genetic Medicine, Volume III, summarizes progress in several of the most important areas of modern molecular genetics and medicine. The book opens with a chapter on the birth and early development of the field of human gene therapy and the earliest conceptual and technical descriptions of the issues and opportunities in this new area of medicine. This is followed by separate chapters on the gene responsible for cystic fibrosis; interactions and genetic phenomena that accompany the progression of astrocytic tumors; and molecular biology of Alzheimer’s disease; and the search for the Huntington's disease gene and the role of genetic instability in this disease. The final chapter discusses the ways in which both the medical insurance and genetics industries will have to respond to changes in the power of genetic information and its ability to predict coronary vascular disease, cancer, neurological disease, and all the other common afflictions that constitute the bulk of their businesses.

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.

Human Molecular Genetics is an established and class-proven textbook for upper-level undergraduates and graduate students which provides an authoritative and integrated approach to the molecular aspects of human genetics. While maintaining the hallmark features of previous editions, the Fourth Edition has been completely updated. It includes new Key Concepts at the beginning of each chapter and annotated further reading at the conclusion of each chapter, to help readers navigate the wealth of information in this subject. The text has been restructured so genomic technologies are integrated throughout, and next generation sequencing is included. Genetic testing, screening, approaches to therapy, personalized medicine, and disease models have been brought together in one section. Coverage of cell biology including stem cells and cell therapy, studying gene function and structure, comparative genomics, model organisms, noncoding RNAs and their functions, and epigenetics have all been expanded.

Over the past two decades there has been an explosion in knowledge about the molecular pathology of human diseases which accelerated with the sequencing of the human genome in 2003. Molecular diagnostics and molecular targeted therapy have contributed to the current concept of personalized patient care that is now routine in many medical centers. As a result, general and subspecialty pathologists, clinical practitioners of all types and radiologists must now have an understanding of the basic concepts of molecular pathology and their role in new diagnostic and therapeutic applications to patient care. The Molecular Pathology Library series was created to bridge the gap between traditional basic science textbooks in molecular biology and traditional medical textbooks for organ-specific diseases. Basic Concepts of Molecular Pathology is designed as a stand-alone book to provide the pathologist, clinician or radiologist with a concise review of the essential terminology, concepts and tools of molecular biology that are applied to the understanding, diagnosis and treatment of human diseases in the age of personalized medicine. Those medical practitioners, residents, fellows and students who need to refer to the terminology and concepts of molecular pathology in their patient care will find the Basic Concepts of Molecular Pathology to be a succinct, portable, user-friendly aid in their practice and studies. The service-based physician will find this handy reference to be valuable at the laboratory benchside, at the patient bedside, at multidisciplinary patient care conferences or as a review for examinations.

Written by experts from Washington University School of Medicine, this text is a thorough review of the specific molecular genetic techniques that can provide diagnostically useful molecular genetic information on tissue samples—including cytogenetics, fluorescence in situ hybridization (FISH), PCR, electrophoresis and hybridization analysis, DNA sequence analysis, and microarrays. The first part of the book describes each technique, indicates its advantages, disadvantages, capabilities, and limitations, and systematically addresses sensitivity and specificity issues. Subsequent chapters, organized by organ system, detail the specific applications of these tests in surgical pathology. More than 150 full-color and black-and-white illustrations complement the text.

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Biological examples of branching processes from molecular and cellular biology are introduced in this volume, as well as from the fields of human evolution and medicine. It will interest scientists who work in quantitative modeling of biological systems, particularly probabilists, mathematical biologists, and others. 54 illustrations.

"This splendid compendium ... will be the standard reference work for years to come: a handbook to browse, to consult, to look things up in, and to read with pleasure, wonder and post-Darwinian exhilaration." —Richard Dawkins "This is a marvellous book… It should be in every university library - preferably in several copies - and every reader of this journal should add it to their next grant application. It really is that good... I have already found this book to be invaluable… For many years to come, these two volumes will be the starting point for anyone wishing to find out about virtually any subject relating to human genetics… Any scientist working on humans or other animals will find many things in these pages that will stimulate, inform and inspire. The authors, editors and publishers are to be congratulated for their work… order a copy now!" —HUMAN GENETICS "The publishers and editors deserve to be congratulated for publishing this major book which coincides with the 200th anniversary of the birth of Charles Darwin. The book is well-timed, with biologists, theologians and sociologists engaged in intense debate on the Darwinian Theory on the origin of species, evolution and natural selection… There is little doubt that this marvellous publication should be in the library of universities and academic institutions dealing with basic and applied biology research and education… It will not be surprising if the individual academic or researcher decides to invest in this resource and enrich their personal collection of leading books in genetics and genomics." —GENOMIC MEDICINE A Unique Collection of High-Quality Articles – Derived from the Acclaimed Encyclopedia of Life Sciences The revolution in human molecular genetics which has taken place over the last three decades has yielded a wealth of information not only on the structure and function of our genes, but also on gene expression, mutation and polymorphic variation. Over the last five years, the focus has moved from genes to genomes. Even though the annotation of our ~30,000 genes is still in progress, genome-wide studies have already yielded abundant evidence for the signatures of past selection and adaptive evolution within human gene sequences. Further, the completion of the sequencing of the 3 billion base-pair human genome, coupled with the increasing availability of other vertebrate genome sequences, has ushered in a new era of comparative genomics. We are now able to identify many of the molecular events (from the chromosomal level down to the single base-pair) that have occurred during vertebrate, mammalian, primate and hominid evolution. Indeed, the detailed comparison of the human and chimpanzee genomes has begun to reveal some of the genetic changes that have been involved in the development of human lineage-specific traits. We are thus acquiring the ability to ask searching questions about our origins, about the demographic processes associated with the global radiation of humankind, as well as some of the unique adaptations that make us human. Evolutionary biology has become so broad that its impact may be felt across

the spectrum of the biological sciences. The aim of the Handbook of Human Molecular Evolution is relatively straightforward: to bring together under the same cover the many and varied strands of our knowledge of human/primate/vertebrate molecular evolution. Hence, the 282 chapters that comprise this essential reference work have been thematically arranged into twelve sections, covering the whole scope of research into human molecular evolution: General Concepts in Evolutionary Genetics Mutation, Adaptation and Natural Selection Evolutionary and Population Genetics Human Evolution Human Genome Evolution Evolution of Human Gene Structure and Function Evolution of Gene Expression Mitochondrial Genome Evolution Chromosomal Evolution Comparative Genomics Evolution and Disease Susceptibility Analysis of Ancient DNA This conceptual outline informed the selection of the chapters themselves and the connections between them. Some of these chapters are intended to be introductory, aimed at undergraduates and non-specialists. They provide basic information and a list of recommended further reading to encourage the reader to explore a topic in more depth. This approach helps the student reader progress from textbook material to primary literature. Some chapters are overviews that address topics of broad interest and importance, while others focus on quite specialized topics. These chapters are written for postgraduate students and research workers; they contain more detailed information and key references allowing the reader to investigate a specific area in more depth. This format allows professionals to use the books as a quick reference source. The chapters are richly supplied with website information to allow access to relevant data sources over the internet. The self-contained, peer-reviewed articles in this unique handbook have been written by leading scientists in each field. Key topics include the evolution of enzyme function, the use of nucleic acid divergence as a "molecular clock", the origin of non-functional or junk DNA, the role of gene duplication in the emergence of novel gene function and the identification of molecular changes responsible for various human characteristics especially those pertaining to infection, cognition, disease and disease susceptibility. The Handbook of Human Molecular Evolution has adopted an integrated approach to the study of human evolution and seeks throughout to emphasize the interplay between molecular genetic concepts and principles on the one hand, and information acquisition and interpretation on the other. In this way, it is hoped that the ‘documents of evolutionary history’ written into the fabric of our genome, will become accessible to the widest possible audience.

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