

The Epigenomic Analysis of Human Obesity

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Objective: Analysis of the epigenome—the chemical modifications and packaging of the genome that can influence or indicate its activity—enables molecular insight into cell type-specific machinery. It can, therefore, reveal the pathophysiological mechanisms at work in disease. Detected changes can also represent physiological responses to adverse environmental exposures, thus enabling the epigenetic mark of DNA methylation to act as an epidemiological biomarker, even in surrogate tissue. This makes epigenomic analysis an attractive prospect to further understand the pathobiology and epidemiological aspects of obesity. Furthermore, integrating epigenomic data with known obesity-associated common genetic variation can aid in deciphering their molecular mechanisms.

Methods and Conclusions: This review primarily examines epidemiological or population-based studies of epigenetic modifications in relation to adiposity traits, as opposed to animal or cell models. It discusses recent work exploring the epigenome with respect to human obesity, which to date has predominately consisted of array-based studies of DNA methylation in peripheral blood. It is of note that highly replicated BMI DNA methylation associations are not causal, but strongly driven by coassociations for more precisely measured intertwined outcomes and factors, such as hyperlipidemia, hyperglycemia, and inflammation. Finally, the potential for the future exploration of the epigenome in obesity and related disorders is considered.

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Introduction

Epigenetic factors include the chemical modifications of DNA and the proteins that the DNA wraps around, which influence or may indicate the activity of genes. Deciphering these marks can be a powerful method to understand the specialized functioning of a cell and organs (1). They may also inform how molecular mechanisms are impeded in disease or because of adverse environments.

The dramatic increase of obesity rates clearly points toward nongenetic or environmental factors as the significant driver. Identified genetic susceptibilities are also modulated by these external influences (2,3). This has led to considerable interest in studying the epigenome to potentially quantify gene activity changes due to this environment and to possibly gain molecular understanding of the pathophysiological consequences of the obese state. Crucial biological understanding of obesity and its consequences is still lacking (4,5) and would help focus vital preventive measures to counter obesity's substantial morbidity and mortality risk (6).

The Epigenome

DNA is packaged at the strand level by wrapping around histone proteins composed of eight subunits, two of each of histones 2A, 2B, 3, and 4. The histone proteins possess tails that can be post-translationally modified, including the addition of methyl or acetyl groups to lysine (K) molecules on histone 3 (H3). These additions can be related to active or repressed regions depending on which K is modified. Amino acid deviation in the protein structure of these histone molecules, termed histone variants, also modifies activity and can be associated with disease processes (7).

Chemical modifications of DNA itself include DNA methylation, the most common, stable, and well-studied process, which is the addition of a methyl group onto the 5' carbon of cytosine. This robust chemical mark is due to the strong covalent carbon-to-carbon bond that connects cytosine to the methyl group. In differentiated cells, this occurs in the DNA sequence predominantly within the context of a CpG dinucleotide, which is where guanine follows cytosine in the 5' to 3' direction on one DNA strand. It acts canonically as a repressive mechanism within gene promoters. However, additional DNA

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Chapter 14 Epigenomic Factors In Human Obesity

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Chapter 14 Epigenomic Factors In Human Obesity:

Epigenetics in Human Disease Trygve Tollefsbol, 2012-07-26 Epigenetics is one of the fastest growing fields of sciences illuminating studies of human diseases by looking beyond genetic make up and acknowledging that outside factors play a role in gene expression The goal of this volume is to highlight those diseases or conditions for which we have advanced knowledge of epigenetic factors such as cancer autoimmune disorders and aging as well as those that are yielding exciting breakthroughs in epigenetics such as diabetes neurobiological disorders and cardiovascular disease Where applicable attempts are made to not only detail the role of epigenetics in the etiology progression diagnosis and prognosis of these diseases but also novel epigenetic approaches to the treatment of these diseases Chapters are also presented on human imprinting disorders respiratory diseases infectious diseases and gynecological and reproductive diseases Since epigenetics plays a major role in the aging process advances in the epigenetics of aging are highly relevant to many age related human diseases Therefore this volume closes with chapters on aging epigenetics and breakthroughs that have been made to delay the aging process through epigenetic approaches With its translational focus this book will serve as valuable reference for both basic scientists and clinicians alike Comprehensive coverage of fundamental and emergent science and clinical usage Side by side coverage of the basis of epigenetic diseases and their treatments Evaluation of recent epigenetic clinical breakthroughs

Epigenetics in Human Disease Trygve O Tollefsbol, 2018-05-18 *Epigenetics in Human Disease* Second Edition examines the diseases and conditions on which we have advanced knowledge of epigenetic mechanisms such as cancer autoimmune disorders aging metabolic disorders neurobiological disorders and cardiovascular disease In addition to detailing the role of epigenetics in the etiology progression diagnosis and prognosis of these diseases novel epigenetic approaches to treatment are also explored Fully revised and up to date this new edition discusses topics of current interest in epigenetic research including stem cell epigenetic therapy bioinformatic analysis of NGS data and epigenetic mechanisms of imprinting disorders Further sections explore online epigenetic tools and datasets early life programming of epigenetics in age related diseases the epigenetics of addiction and suicide and epigenetic approaches to regulating and preventing diabetes cardiac disease allergic disorders Alzheimer s disease respiratory diseases and many other human maladies Includes contributions from leading international investigators involved in translational epigenetic research and therapeutic applications Integrates methods and applications with fundamental chapters on epigenetics in human disease along with an evaluation of recent clinical breakthroughs Presents side by side coverage of the basis of epigenetic diseases and treatment pathways Provides a fully revised resource covering current developments including stem cell epigenetic therapy the bioinformatic analysis of NGS data epigenetic mechanisms of imprinting disorders online epigenetic tools and datasets and more

Childhood Obesity Michael I. Goran, 2016-10-14 Childhood obesity has reached epidemic proportions in the United States and continues to increase in prevalence in almost all countries in which it has been studied including developed and

developing countries around the globe The causes of obesity are complex and multi factorial Childhood obesity becomes a life long problem in most cases and is associated with long term chronic disease risk for a variety of diseases including type 2 diabetes cardiovascular disease non alcoholic fatty liver disease as well as psychosocial as issues and obesity seems to affect almost every organ system in the body In recent years there has been tremendous progress in the understanding of this problem and in strategies for prevention and treatment in the pediatric years Childhood Obesity Causes Consequences and Intervention Approaches presents current reviews on the complex problem of obesity from the multi level causes throughout early life before adulthood and the implications for this for long term disease risk It reviews numerous types of strategies that have been used to address this issue from conventional clinical management to global policy strategies attempting to modify the global landscape of food nutrition and physical activity Each chapter is written by a global authority in his or her respective field with a focus on reviewing the current status and recent developments The book features information on contributing factors to obesity including developmental origins social family birth cohort studies influence of ethnicity and global perspectives It takes a life course approach to the subject matter and includes exhaustive treatment of contributing factors to childhood obesity such as assessment environmental factors nutrition and dietary factors host factors interventions and treatment consequences and further action for future prevention This broad range of topics relevant to the rapidly changing field of childhood obesity is suitable for students health care professionals physicians and researchers

Adipose Tissue and Adipokines in Health and Disease Giamila Fantuzzi, Carol Braunschweig, 2014-04-25 The field of adipose tissue biology has been expanding at a very rapid pace in the last few years Numerous advances have been made since publication of the first edition of this book in terms of basic adipocyte biology understanding of the determinants of obesity distribution of body fat and weight loss as well as the mechanisms linking excess adiposity to various co morbidities Adipose Tissue and Adipokines in Health and Disease Second Edition contains updated chapters from the previous volume but as the field has evolved some areas covered in the first edition have been refocused to address the new knowledge The volume is divided in four sections the first two deal with basic adipose tissue and adipokine biology while the last two address the problem of obesity and alterations in adipose tissue function from an epidemiological and clinical standpoint The chapters are written by experts in their fields and include the most up to date scientific information Adipose Tissue and Adipokines in Health and Disease Second Edition is a useful resource for physicians interested in adipose tissue biology and basic scientists who want to know more about applied aspects of the field The book targets endocrinologists residents and fellows internists nutritionists and general practitioners who are exposed to an ever expanding obese population

Medical Epigenetics, 2021-08-27 Selected for Doody s Core Titles 2024 in Clinical Genetics Medical Epigenetics Second Edition provides a comprehensive analysis of epigenetics in health management across a broad spectrum of disease categories and specialties and with a focus on human systems epigenetic diseases that affect these systems and evolving modes of epigenetic based

treatment Here more than 40 leading researchers examine how each human system is affected by epigenetic maladies offering an all in one resource on medical epigenetics not only for those directly involved with health care but investigators in life sciences biotech companies graduate students and others who are interested in applied aspects of epigenetics Incorporating both diagnostic and prognostic epigenetic approaches this volume also fully supports the application of epigenetics in precision medicine This second edition of Medical Epigenetics a volume in the Translational Epigenetics series has been fully revised to address recent advances in disease epigenetics and role of epigenetics in precision medicine with all new chapters on skin cancer epigenetics network analysis in medical epigenetics machine learning in epigenetic diseases and clinical trials of epigenetics drugs Features chapters from leading researchers and clinicians dedicated to the burgeoning role of epigenetics in medical practice Covers emerging topics including twin epigenetics as well as epigenetics of gastrointestinal disease muscle disorders endocrine disorders ocular medicine pediatric diseases sports medicine noncoding RNA therapeutics pain management and regenerative medicine Organized from system disorders to multi system disorders that involve epigenetic aberrations Examines the role of epigenetics in precision medicine

Personalized Epigenetics
 Trygve Tollefsbol, 2024-07-17 Personalized Epigenetics Second Edition discusses the core translatability of epigenetics to health management of individuals who have unique variations in their epigenetic signatures that can guide both disorder and disease prevention and therapy Fully updated and revised this new edition details inter individual variability in the major epigenetic process in humans consisting of DNA methylation histone modifications noncoding RNA and the diagnostic prognostic and therapeutic potential of the field It also reviews the impact of the environment on epigenetic variations among individuals and the role of pharmacology and drug development in personalized epigenetics Most importantly the text covers personalized epigenetics from a disease oriented perspective presenting chapters that provide advances in widespread disorders or diseases including diabetes cancer autoimmune disorders obesity cardiovascular diseases neurological disorders and pain management Includes new chapters on topics such as the limitations of personalized epigenetic variation comparisons personalized epigenetics technologies epigenetics of personalized nanomedicine personalized epigenetic management of diabetes epigenetics and chemoresistance and personalized epigenetics and neurological disorders Covers key methodological processes that are important in personalized medicine Offers disease research case studies to provide in depth discussion of examples of recent epigenetic research on a disease area Features topics such as forensic epigenetics epigenetics of personalized toxicity limitations of epigenetic variation comparisons and nanomedicine and nutrigenomics as applied to personalized epigenetics

Sadikot's International Textbook of Diabetes Kamlakar Tripathi, Banshi Saboo, 2019-04-30 This book is a complete guide to the diagnosis and management of diabetes Divided into eight sections the text begins with an overview of the history epidemiology and pathogenesis of the disease The next chapters discuss different types diabetes diagnosis managements techniques and monitoring The following sections cover chronic and acute

complications and diabetes in special situations such as in pregnancy and during Ramadan The book concludes with discussion on transplant gene and stem cell therapy psychosocial aspects and public health and economics The comprehensive text is further enhanced by clinical photographs diagrams and exhaustive references Key points Comprehensive guide to diagnosis and management of diabetes Covers different types of diabetes and potential complications Includes discussion on diabetes in special situations such as in pregnancy or during Ramadan Features clinical photographs diagrams and exhaustive references

Gene Regulation and Epigenetics Carsten Carlberg, 2024-10-04 This book delves into the fascinating realm of eukaryotic gene regulation The specific expression of genes shapes the phenotype of cells and tissues The regulation of gene expression including up and downregulation is a fundamental aspect of nearly all physiological processes both in health and disease These dynamic processes respond to various daily challenges such as dietary changes and infections Therefore it is crucial for not only biologists and biochemists but also all students in biomedical disciplines to understand gene regulation concepts This foundational knowledge will benefit them in their specialized fields A comprehensive understanding of transcription factors and the mechanisms that alter their activity is a fundamental goal of modern life science research Epigenetics refers to the packaging and accessibility of the genome in each of the trillions of cells in our bodies The prefix epi meaning upon above or beyond indicates that epigenetic processes do not alter the DNA sequence of our genome adding a layer of information beyond that encoded in our genome Genomic DNA is wrapped around complexes of histone proteins helping it fit into a cell nucleus with a diameter of less than 10 m This protein DNA complex is known as chromatin The content of this book is linked to the Molecular Medicine and Genetics course which the author has lectured on in various forms since 2002 at the University of Eastern Finland in Kuopio This book is an updated version of the textbooks *Mechanisms of Gene Regulation and Human Epigenomics* It is divided into 16 chapters Following two introductory chapters four chapters explore gene regulation from the perspective of transcription factors while another four chapters focus on chromatin and non coding RNA Three chapters then discuss the impact of epigenetics from a health perspective and the final three chapters address epigenetics from the perspective of diseases A glossary in the appendix explains the major specialist terms

Epidemiology of Obesity in Children and Adolescents Luis A. Moreno, Iris Pigeot, Wolfgang Ahrens, 2011-01-12 Despite adults best preventive efforts childhood obesity is on the rise in most areas of the world and with it the prevalence of Type 2 diabetes hypertension cardiovascular disease and other formerly adult onset conditions *Epidemiology of Obesity in Children and Adolescents* takes the global ecological approach that is needed to understand the scope of the problem and its multiple causes and mechanisms and to aid in developing more effective prevention and intervention programs In the book's first half experts present a descriptive summary of youth obesity trends in ten world regions broken down by age group gender socioeconomic status and risk factors Complementing these findings part two reviews the evidence base regarding the variables separately and in combination having the most significant impact

on young people's development of obesity including Genetic and nutrigenomic factors Environmental and psychosocial factors such as family shopping and eating habits and access to healthful foods Neuroendocrine regulation Prenatal and neonatal factors e.g. gestational diabetes of the mother Dietary factors from nutrient content to young people's food preferences Physical activity versus sedentary behavior Epidemiology of Obesity in Children and Adolescents is necessary reading for the range of professionals involved in curtailing this epidemic including public health specialists epidemiologists pediatricians nurses nutritionists psychologists health educators and policymakers

Textbook of Diabetes Richard I. G. Holt, Allan Flyvbjerg, 2024-02-12 Textbook of Diabetes Classic textbook providing diabetologists and endocrinologists with illustrated and clinically focused content on diabetes Now in its sixth edition the Textbook of Diabetes has established itself as the modern international guide to diabetes Sensibly organized and easy to navigate with exceptional illustrations the textbook hosts an unrivalled blend of clinical and scientific content Written by highly experienced editors and international contributors all of whom have provided insight on new developments in diabetes care These include the most recent guidelines from the European Association for the Study of Diabetes EASD the American Diabetes Association ADA Diabetes UK and the National Institute for Health and Care Excellence NICE and information on the latest treatment modalities used around the world The textbook includes free access to the Wiley Digital Edition which provides easy to use searching across the book the full reference list with web links illustrations and photographs and post publication updates Sample topics covered in Textbook of Diabetes include Diabetes in its historical and social context covering the history of diabetes past classification and diagnosis of diabetes and the global burden of diabetes Normal physiology covering glucose homeostasis islet function and insulin secretion and glucagon in islet and metabolic regulation Pathogenesis of diabetes covering genetics of diabetes and obesity autoimmune type 1 diabetes and other disorders with type 1 diabetes phenotype Other types of diabetes covering endocrine disorders that cause diabetes pancreatic diseases and diabetes and drug induced diabetes Beautifully illustrated with a clinical focus Textbook of Diabetes provides endocrinologists and diabetologists both consultants specialists and those in training with a fresh and comprehensive clinical resource to consult time and time again The text is also of value to specialist diabetes nurses and researchers in the field

Compulsive Eating Behavior and Food Addiction Pietro Cottone, Catherine F Moore, Valentina Sabino, George F. Koob, 2019-07-24 Compulsive Eating Behavior and Food Addiction Emerging Pathological Constructs is the first book of its kind to emphasize food addiction as an addictive disorder This book focuses on the preclinical aspects of food addiction research shifting the focus towards a more complex behavioral expression of pathological feeding and combining it with current research on neurobiological substrates This book will become an invaluable reference for researchers in food addiction and compulsive eating constructs Compulsive eating behavior is a pathological form of feeding that phenotypically and neurobiologically resembles the compulsive like behaviors associated with both drug abuse and behavioral addictions Compulsive eating behavior including Binge Eating Disorder BED

certain forms of obesity and food addiction affect an estimated 70 million individuals worldwide Synthesizes clinical and preclinical perspectives on addictive eating behavior Identifies how food addiction is similar and or different from other addictions Focuses on the underlying neurobiological mechanisms Provides information on therapeutic interventions for patients with food addiction Gray's Anatomy E-Book Susan Standring,2021-05-22 Susan Standring MBE PhD DSc FKC Hon FAS Hon FRCS Trust Gray s Building on over 160 years of anatomical excellence In 1858 Drs Henry Gray and Henry Vandyke Carter created a book for their surgical colleagues that established an enduring standard among anatomical texts After more than 160 years of continuous publication Gray s Anatomy remains the definitive comprehensive reference on the subject offering ready access to the information you need to ensure safe effective practice This 42nd edition has been meticulously revised and updated throughout reflecting the very latest understanding of clinical anatomy from the world s leading clinicians and biomedical scientists The book s acclaimed lavish art programme and clear text has been further enhanced while major advances in imaging techniques and the new insights they bring are fully captured in state of the art X ray CT MR and ultrasonic images The accompanying eBook version is richly enhanced with additional content and media covering all the body regions cell biology development and embryogenesis and now includes two new systems orientated chapters This combines to unlock a whole new level of related information and interactivity in keeping with the spirit of innovation that has characterised Gray s Anatomy since its inception Each chapter has been edited by international leaders in their field ensuring access to the very latest evidence based information on topics Over 150 new radiology images offering the very latest X ray multiplanar CT and MR perspectives including state of the art cinematic rendering The downloadable Expert Consult eBook version included with your print purchase allows you to easily search all of the text figures references and videos from the book on a variety of devices Electronic enhancements include additional text tables illustrations labelled imaging and videos as well as 21 specially commissioned Commentaries on new and emerging topics related to anatomy Now featuring two extensive electronic chapters providing full coverage of the peripheral nervous system and the vascular and lymphatic systems The result is a more complete practical and engaging resource than ever before which will prove invaluable to all clinicians who require an accurate in depth knowledge of anatomy Evidence Based Equine Nutrition Teresa Hollands,Lizzie Drury,2023-09-30 This book uniquely provides both the scientific basis of equine nutrition and the translation of that science into practical day to day feeding advice It summarises the latest research to provide readers with the evidence base needed to both confidently advise those who want to understand the science behind equine nutrition and apply that evidence into practical advice for anyone who just wants to know how to feed horses Both veterinary and animal science courses struggle to provide adequate nutrition training within their syllabuses Much of the general information available is poorly explained and not evidence based This book fills that gap with the author team relaying over 50 cumulative years experience teaching equine nutrition to both practising clinicians and students A recommended resource to

support the teaching of veterinary nutrition this book should also be found on the bookshelf of all veterinarians animal scientists trainers nutritionists and nutritional advisors **Neuroscience of Clinical Psychiatry** Edmund S Higgins, Mark Stork George, 2013-04 Neuroscience of Clinical Psychiatry Second Edition Fully revised and updated in its Second Edition this handy and accessible reference provides a basic link between the science of the brain and the treatment of common mental health disorders Ideal for the mental health clinician in training the psychiatric resident preparing for Board exams and the practicing clinician looking to keep pace with the latest advances in neuroscience the book uses clear and direct language to enhance your understanding of basic neuroscientific concepts and the effects of brain chemistry on common behaviors and disorders Updated content reflects the latest advances in the field while straightforward discussions make complex material easy to understand and process The book's concise presentation helps readers grasp retain and apply essential concepts Abundant illustrations and tables support the text and provide vital information at a glance End of chapter review questions reinforce key concepts and assist in Board preparation Look inside and discover Updated content reflects the latest advances in the field Straightforward discussions make complex material easy to understand and process Concise presentation helps you grasp retain and apply essential concepts Abundant illustrations and tables support the text and provide vital information at a glance End of chapter review questions reinforce key concepts and assist in Board preparation Pick up your copy today **Precision Nutrition** David Heber, Zhaoping Li, José Ordovas, 2023-10-20 Precision Nutrition The Science and Promise of Personalized Nutrition and Health organizes and integrates information on the diverse special areas of scientific expertise involved in Precision Nutrition in order to inform health professionals and inspire researchers to advance this field while applying the general principles into health care and medical research now Broken into three sections this book addresses the fundamentals of precision nutrition applications of precision nutrition in health and disease and the future directions of precision nutrition Nutrition scientists geneticists physicians dietitians postdoctoral fellows and epidemiologists seeking to understand Precision Nutrition will benefit from this timely reference Applies precision nutrition to diet and lifestyle conditions including heart disease diabetes and cancer Identifies future aspects of precision nutrition utilizing AI machine learning and superfast computers Outlines promising areas of research **Textbook of Obesity** Sharon R. Akabas, Sally Ann Lederman, Barbara J. Moore, 2012-03-20 Textbook of Obesity is designed to cover all of the essential elements concerning the etiology prevention and treatment of obesity suitable for students in nutrition dietetics and health science courses Providing core knowledge for students is an essential and urgent requirement to ensure that those graduating will be properly equipped to deal with the high prevalence of overweight and obesity currently affecting almost two thirds of the population of the USA and with prevalence in much of the rest of the world rapidly catching up This landmark text is organized into 5 parts comprising 27 chapters each carefully written in a user friendly style by experts in the area Part I helps the reader to understand the scope and complexity of the problem of obesity Part II focuses on obesity

etiology Part III examines the health consequences of obesity for both children and adults Part IV discusses the challenge of assessing obesity in humans and offers insights into community factors that influence the risk of obesity Finally Part V dedicates 13 chapters to a discussion of a wide variety of obesity prevention and treatment interventions that are currently in use Textbook of Obesity is an essential purchase for students and the many health professionals dealing with obesity on a day to day basis A dedicated companion website features an extensive bank of questions and answers for readers to test their understanding and all of the book's illustrations for instructors to download www.wiley.com/go/akabasobesity

Developmental Neurotoxicology Research Cheng Wang, William Slikker, Jr, 2011-04-12 This book describes how systems biology pharmacogenomic and behavioral approaches as applied to neurodevelopmental toxicology provide a structure to arrange information in a biological model Authors review and discuss approaches that can be used as effective tools to dissect mechanisms underlying pharmacological and toxicological phenomena associated with the exposure to drugs or environmental toxicants during development This book presents cross cutting research tools and animal models along with applications to the studies associated with potential anesthetic induced developmental neurotoxicity the developmental basis of adolescent or adult onset of disease risk assessment of methyl mercury and its effects on neurodevelopment challenges in the field to identify environmental factors of relevance to autism and the strategy and progress of epilepsy research

Epigenetics of Exercise and Sports Stuart M Raleigh, 2021-07-13 Epigenetics of Exercise and Sports Concepts Methods and Current Research explains fundamental epigenetic processes and how these are altered by exercise and sports After a brief review of fundamental epigenetic biology this all new volume in the Translational Epigenetics series offers step by step instruction in how epigenetic factors are investigated for their influence over exercise related traits of human physiology disease and injury The current state of knowledge in the field and recent findings are discussed in depth illuminating how exercise and sports performance may epigenetically modify our physiology disease and injury risks and how this knowledge can be applied in personalized exercise approaches diagnostics and treatment This book also explores the shortcomings of explaining exercise related phenomena using only genomics and traditional biochemical techniques setting the scene for a paradigm shift in exercise biology In addition over a dozen international specialists contribute chapters on exercise and sports epigenetics and their influence over metabolism obesity aging immunity and neurological disease as well as the epigenetic impacts of concussions and sports doping A concluding chapter discusses ongoing themes in the field and outlooks for future research Thoroughly examines fundamental concepts in exercise and sports epigenetics methods for new research and known impacts for human physiology disease and clinical outcomes Discusses exercise and sports epigenetics in relation to metabolism obesity aging immunity and neurological disease concussion and sports doping among other topics Includes preliminary information on exercise epigenetics and covid 19 infection Features chapter contributions from international experts in the field

Drug Discovery in Cancer Epigenetics Gerda Egger, Paola Arimondo, 2015-11-19

Drug Discovery in Cancer Epigenetics is a practical resource for scientists involved in the discovery testing and development of epigenetic cancer drugs Epigenetic modifications can have significant implications for translational science as biomarkers for diagnosis prognosis or therapy prediction Most importantly epigenetic modifications are reversible and epigenetic players are found mutated in different cancers therefore they provide attractive therapeutic targets There has been great interest in developing and testing epigenetic drugs which inhibit DNA methyltransferases histone modifying enzymes or chromatin reader proteins The first few drugs are already FDA approved and have made their way into clinical settings This book provides a comprehensive summary of the epigenetic drugs currently available and aims to increase awareness in this area to foster more rapid translation of epigenetic drugs into the clinic Highlights the potential of epigenetic alterations in cancer for drug development Covers the tools and methods for epigenetic drug discovery preclinical and clinical testing and clinical implications of epigenetic therapy Provides important information regarding putative epigenetic targets epigenetic technologies networks and consortia for epigenetic drug discovery and routes for translation

Gray's Anatomy E-Book
,2015-09-25 In 1858 Drs Henry Gray and Henry Vandyke Carter created a book for their surgical colleagues that established an enduring standard among anatomical texts After more than 150 years of continuous publication Gray s Anatomy remains the definitive comprehensive reference on the subject offering ready access to the information you need to ensure safe effective practice This 41st edition has been meticulously revised and updated throughout reflecting the very latest understanding of clinical anatomy from field leaders around the world The book s traditional lavish art programme and clear text have been further honed and enhanced while major advances in imaging techniques and the new insights they bring are fully captured in new state of the art X ray CT MR and ultrasonic images Presents the most detailed and dependable coverage of anatomy available anywhere Regional organization collects all relevant material on each body area together in one place making access to core information easier for clinical readers Anatomical information is matched with key clinical information where relevant Numerous clinical discussions emphasize considerations that may affect medical care Each chapter has been edited by experts in their field ensuring access to the very latest evidence based information on that topic More than 1 000 completely new photographs including an extensive electronic collection of the latest X ray CT MR and histological images The downloadable Expert Consult eBook version included with your purchase allows you to search all of the text figures references and videos from the book on a variety of devices Carefully selected electronic enhancements include additional text tables illustrations labelled imaging and videos as well as 24 specially invited Commentaries on new and emerging topics related to anatomy

Ignite the flame of optimism with is motivational masterpiece, **Chapter 14 Epigenomic Factors In Human Obesity** . In a downloadable PDF format (PDF Size: *), this ebook is a beacon of encouragement. Download now and let the words propel you towards a brighter, more motivated tomorrow.

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Chapter 14 Epigenomic Factors In Human Obesity Introduction

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