

Nutrigenomics And Nutrigenetics In Functional Foods And Personalized Nutrition

"This volume brings together leading experts in the areas of nutrition, nutrigenomics, metabolic programming, food-based bioactive dietary components and the gut microbiome, as well as those expert in the application of innovative tools and methods for statistical and biological network analysis, which are now at the forefront of nutritional and biomedical sciences. The articles provide a roadmap for the integration of normative science methods and approaches with more comprehensive systems biology-based investigations that deploy a multitude of omic platforms. This integration is essential to escape the bottleneck in knowledge generation by applying decades of knowledge of nutrients and their function to comprehensive omics and clinical data acquisition, processing, visualization, and interpretation. Achieving a systems-level understanding of nutrient function in health and disease will usher in an age of precision nutrition in support of maximizing human health and potential"--

Functional Foods in Cancer Prevention and Therapy presents the wide range of functional foods associated with the prevention and treatment of cancer. In recent decades, researchers have made progress in our understanding of the association between functional food and cancer, especially as it relates to cancer treatment and prevention. Specifically, substantial evidence from epidemiological, clinical and laboratory studies show that various food components may alter cancer risk, the prognosis after cancer onset, and the quality of life after cancer treatment. The book documents the therapeutic roles of well-known functional foods and explains their role in cancer therapy. The book presents complex cancer patterns and evidence of the effective ways to control cancers with the use of functional foods. This book will serve as informative reference for researchers focused on the role of food in cancer prevention and physicians and clinicians involved in cancer treatment. Discusses the role of functional foods in cancer therapy Presents research-based evidence of the role of herbs and bioactive foods in cancer treatment and prevention Provides the most current, concise, scientific information regarding the efficacy of functional foods in preventing cancer and improving the quality of life Explores antioxidants, phytochemicals, nutraceuticals, herbal medicine and supplements in relation to cancer prevention and treatment Contains a clinical approach to the use of functional foods to prevent and treat cancer Emphasizes the role and mechanism of functional foods, including the characterization of active compounds on cancer prevention and treatment

Will the genetic design of athletes destroy sport ... or will it lead to a new and extraordinary age of athletic achievement? Exploring a new territory in sport and ethics, this edited collection contains some of the best new writing that has emerged from the debates concerning the uses of genetic technologies to improve sport performance. Issues covered include: * gene technology and sports ethics * genetic testing in sports * gene technology and the sporting ethos * gene technology and gender equality in sport. This cutting-edge text is the first on the subject to analyze gender specific questions that arise from genetically modified sport and is likely to provoke further debate in the world of sport and bio-ethics. Contributors include Lincoln Allison, Ruth Chadwick, Arne Ljungqvist, Andy Miah, Christian Munthe, Bengt Saltin, Angela Schnieder and many more.

The Mediterranean Diet offers researchers and clinicians a single authoritative source which outlines many of the complex features of the Mediterranean diet: ranging from supportive evidence and epidemiological studies, to the antioxidant properties of individual components. This book embraces a holistic approach and effectively investigates the Mediterranean diet from the cell to the nutritional well-being of geographical populations. This book represents essential reading for researchers and practicing clinicians in nutrition, dietetics, endocrinology, and public health, as well as researchers, such as molecular or cellular biochemists, interested in lipids, metabolism, and obesity. Presents one comprehensive, translational source for all aspects of how the Mediterranean diet plays a role in disease prevention and health Experts in nutrition, diet, and endocrinology (from all areas of academic and medical research) take readers from the bench research (cellular and biochemical mechanisms of vitamins and nutrients) to new preventive and therapeutic approaches Features a unique section on novel nutraceuticals and edible plants used in the Mediterranean region

Issues of Ethics, Law, Regulation and Communication

Nutritional Epigenomics

Proceedings of a Workshop

Informing the Future: Workshop Summary

The Role of Functional Food Security in Global Health

Molecular Nutrition and Genomics

Principles of Nutrigenetics and Nutrigenomics: Fundamentals for Individualized Nutrition is the most comprehensive foundational text on the complex topics of nutrigenetics and nutrigenomics. Edited by three leaders in the field with contributions from the most well-cited researchers conducting groundbreaking research in the field, the book covers how the genetic makeup influences the response to foods and nutrients and how nutrients affect gene expression. Principles of Nutrigenetics and Nutrigenomics: Fundamentals for Individualized Nutrition is broken into four parts providing a valuable overview of genetics, nutrigenetics, and nutrigenomics, and a conclusion that helps to translate research into practice. With an overview of the background, evidence, challenges, and opportunities in the field, readers will come away with a strong understanding of how this new science is the frontier of medical nutrition. Principles of Nutrigenetics and Nutrigenomics: Fundamentals for Individualized Nutrition is a valuable reference for students and researchers studying nutrition, genetics, medicine, and related fields. Uniquely foundational, comprehensive, and systematic approach with full evidence-based coverage of established and emerging topics in nutrigenetics and nutrigenomics Includes a valuable guide to ethics for genetic testing for nutritional advice Chapters include definitions, methods, summaries, figures, and tables to help students, researchers, and faculty grasp key concepts Companion website includes slide decks, images, questions, and other teaching and learning aids designed to facilitate communication and comprehension of the content presented in the book

Fully updated, the Oxford Handbook of Nutrition and Dietetics is a practical quick-reference to the vital and valued subject of nutrition in the prevention and treatment of disease and the maintenance of good health. This handbook will be an invaluable companion for all dieticians, nutritionists, and nurses, as well as doctors and students in a variety of specialities. Concise and bulleted, this handbook takes an integrated approach which facilitates the linksbetween all aspects of nutrition and dietetics. Including nutritional science and based on clinical evidence. Sections on obesity and a new chapter on international nutrition are timely and topical. Alsoincludes information on nutrition assessment, popular diets, nutrition in systems-based diseases, rarer conditions, as well as helpful lists of foods rich in or free from certain nutrients and normal range guides and handy reference values.

On December 5, 2017, the National Academies of Sciences, Engineering, and Medicine hosted a public workshop titled Nutrigenomics and the Future of Nutrition in Washington, DC, to review current knowledge in the field of nutrigenomics as it relates to nutrition. Workshop participants explored the influence of genetic and epigenetic expression on nutritional status and the potential impact of personalized nutrition on health maintenance and chronic disease prevention. This publication summarizes the presentations and discussions from the workshop.

Nutrigenomics is the rapidly developing field of science that studies nutrient-gene interaction. This field has broad implications for understanding the interaction of human genomics and nutrition, but can also have very specific implications for individual dietary recommendations in light of personal genetics. Predicted applications for nutrigenomics include genomics-based dietary guidelines and personalized nutrition based on individual genetic tests. These developments have sweeping ethical, legal and regulatory implications for individuals, corporations and governments. This book brings together experts in ethics, law, regulatory analysis, and communication studies to identify and address relevant issues in the emerging field of nutritional genomics. Contributing authors are experts in the social aspects of biotechnology innovation, with expertise in nutrigenomics. From addressing the concern that nutrigenomics will transform food into medicine and undermine pleasures associated with eating to the latest in the science of nutrigenomics, this book provides a world-wide perspective on the potential impact of nutrigenomics on our association with food. *Explores the rapidly developing, yet not fully understood, impact of nutrigenomics on the relationship to food medicalization, genetic privacy, nutrition and health. *Provides ground for further exploration to identify issues and provide analysis to aid in policy and regulation development *Provides ethical and legal insights into this unfolding science, as well as serving as a model for thinking about issues arising in other fields of science and technology

The Mediterranean Diet

Functional Foods and Dietary Supplements

CANINE NUTRIGENOMICS

The Impact of Dietary Regulation of Gene Function on Human Disease

Nutrigenomics and the Future of Nutrition

Nutrigenetics

Exploring the connection between nutrition and mental wellness so therapists can provide more effective, integrated treatment. Diet is an essential component of a client's clinical profile. Few therapists, however, have any nutritional training, and many don't know where to begin. In Nutrition Essentials for Mental Health, Leslie Korn provides clinicians with a practical guide to the complex relationship between what we eat and the way we think, feel, and interact with the world. Where there is mental illness there is frequently a history of digestive and nutritional problems. Digestive problems in turn exacerbate mental distress, all of which can be improved by nutritional changes. It's not unusual for a deficit or excess of certain nutrients to disguise itself as a mood disorder. Indeed, nutritional deficiencies factor into most mental illness—from anxiety and depression to schizophrenia and PTSD—and dietary changes can work alongside or even replace medications to alleviate symptoms and support mental wellness. Nutrition Essentials for Mental Health offers the mental health clinician the principles and practices necessary to provide clients with nutritional counseling to improve mood and mental health. Integrating clinical evidence with the author's extensive clinical experience, it takes clinicians step-by-step through the essentials for integrating nutritional therapies into mental health treatment. Throughout, brief clinical vignettes illustrate commonly encountered obstacles and how to overcome them. Readers will learn:
• Why nutrition matters in mental health
• The role of various nutrients in nourishing both the brain and the gut, the "second brain"
• Typical nutritional culprits that underlie or exacerbate specific mental disorders
• Assessment techniques for evaluating a client's unique nutritional needs, and counseling methods for the challenging but rewarding process of nutritional change.
• Leading-edge protocols for the use of various macro- and micronutrients, vitamins, and supplements to improve mental health
• Considerations for food allergies, sensitivities, and other special diets
• The effects of foods and nutrients on DSM-5 categories of illness, and alternatives to pharmaceuticals for treatment
• Comprehensive, stage-based approaches to coaching clients about dietary plans, nutritional supplements, and other resources
• Ideas for practical, affordable, and individualized diets, along with optimal cooking methods and recipes
• Nutritional strategies to help with withdrawal from drugs, alcohol and pharmaceuticals And much more. With this resource in hand, clinicians can enhance the efficacy of all their methods and be prepared to support clients' mental health with more effective, integrated treatment.

The notion of matching diet with an individual's genetic makeup is transforming the way the public views nutrition as a means of managing health and preventing disease. To fulfill the promise of nutritional genomics, researchers are beginning to reconcile the diverse properties of dietary factors with our current knowledge of genome structure and g

The Role of Functional Food Security in Global Health presents a collective approach to food security through the use of functional foods as a strategy to prevent under nutrition and related diseases. This approach reflects the views of the Food and Agriculture Organization of the United Nations, the World Health Organization, the World Heart Federation and the American Heart Association who advise Mediterranean, Paleolithic, plant food based diets, and European vegetarian diets for the prevention of cardiovascular disease. In addition, the book also emphasizes the inclusion of spices, herbs and millets, as well as animal foods. This book will be a great resource to the food industry as it presents the most efficient ways to use technology to manufacture slowly absorbed, micronutrient rich functional foods by blending foods that are rich in healthy nutrients. Provides greater knowledge on functional food security Highlights the necessary changes to the western diet that are needed to achieve food security Explains the utility and necessity of functional food security in the prevention of noncommunicable diseases Presents policy changes in food production for farmers and the larger food industry Offers suggestions on what can be done to enhance functional food production while simultaneously decreasing production costs

Nutritional Epigenomics offers a comprehensive overview of nutritional epigenomics as a mode of study, along with nutrition's role in the epigenomic regulation of disease, health and developmental processes. Here, an expert team of international contributors introduces readers to nutritional epigenomic regulators of gene expression, our diet's role in epigenomic regulation of disease and disease inheritance, caloric restriction and exercise as they relate to recent epigenomic findings, and the influence of nutritional epigenomics over circadian rhythms, aging and longevity, and fetal health and development, among other processes. Disease specific chapters address metabolic disease (obesity and diabetes), cancer, and neurodegeneration, among other disorders. Diet-gut microbiome interactions in the epigenomic regulation of disease are also discussed, as is the role of micronutrients and milk miRNAs in epigenetic regulation. Finally, chapter authors examine ongoing discussions of race and ethnicity in the social-epigenomic regulation of health and disease. Empowers the reader to employ nutritional epigenomics approaches in their own research Discusses the latest topics in nutritional epigenomics in the regulation of aging, circadian rhythm, inheritance and fetal development, as well as metabolism and disease Offers a full grounding in epigenetic reprogramming and nutritional intervention in the treatment and prevention of disease, as informed by population-based studies

Genomics, Proteomics and Metabolomics in Nutraceuticals and Functional Foods

Principles of Nutrigenetics and Nutrigenomics

Applying the Science of Personal Nutrition

Dirty Genes

The Impact of Nutrition and Diet on Oral Health

Wild Plants, Mushrooms and Nuts

While functional foods have become a reasonably well-established concept, personalized nutrition is still treated with skepticism by many. The recognition that people would have different nutrient requirements, or perceive foods in different ways, raises several concerns-some real, some not so real. Nutrigenomics and Nutrigenetics in Functional Foo

Presenting an up-to-date review of the state-of-the-art and main applications of omics technologies to current hot topics in food sciences, this book is divided into four convenient sections. The first section represents an introduction to the development of foodomics and will provide a general overview of DNA-based and protein-based methods. The second section is focused on the main applications of omics to food safety issues, such as chemical hazards, foodborne pathogens, phages, food authentication or GMO detection. The third section is focused on specific food groups and how omics have revolutionized the investigation of dairy and meat products, seafood, agricultural and fermented food products. Finally, the fourth section is devoted to the link between foodomics and health: hot topics such as nutrimetabolomics, food allergy or probiotics are reviewed here. The book brings together work from top international scientists to produce the most significant academic book for some years on omics and food for a broad audience. It presents unique features not covered so far by other books, such as a detailed description of different strategies and applications of omics techniques to many food sectors and provides a welcome addition to the cutting-edge literature in this area for researchers and professionals in food science and food chemistry.

This book is a printed edition of the Special Issue "Nutrigenetics" that was published in Nutrients

This new book presents a variety of important research on functional foods—foods that have another role related to disease prevention or health. The first section of the book includes chapters on the complicated relationships between nutrition, physical and mental health, and disease. Section two focuses on the connection between health science and food, and presents a number of case studies on the possible uses of functional foods. The book discusses important methods for nutritional interventions in relation to diseases such as obesity and other prominent health concerns in modern society. Topics include: Nutrigenetics and metabolic diseases Nutrition intervention strategies to improve health Nutrition consumption timing around exercise sessions Nutritional therapies for mental disorders Health benefits of particular foods, such as eggs, milk, cereal, garlic, cinnamon, nuts, blueberries, etc. Mineral- and protein-enriched foods

An Evidence-Based Approach

Science, Society, and the Supermarket

Genetic Technology and Sport

Ethical Questions

Translating Nutrigenetic/nutrigenomic Research Into Dietary Guidelines

The Opportunities and Challenges of Nutrigenomics

Functional foods and nutraceuticals have received considerable interest in the past decade largely due to increasing consumer awareness of the health benefits associated with food. Diet in human health is no longer a matter of simple nutrition: consumers are more proactive and increasingly interested in the health benefits of functional foods and their role in the prevention of illness and chronic conditions. This, combined with an aging population that focuses not only on longevity but also quality of life, has created a market for functional foods and nutraceuticals. A fully updated and revised second edition, Genomics, Proteomics and Metabolomics in Nutraceuticals and Functional Foods reflects the recent upsurge in "omics" technologies and features 48 chapters that cover topics including genomics, proteomics, metabolomics, epigenetics, peptidomics, nutrigenomics and human health, transcriptomics, nutriethics and nanotechnology. This cutting-edge volume, written by a panel of experts from around the globe reviews the latest developments in the field with an emphasis on the application of these novel technologies to functional foods and nutraceuticals.

The nutraceutical and functional food field is rapidly growing in diverse sectors, including academic, commercial and government. This has brought a corresponding shift in research focus and in public awareness. Understanding the relevance of the scientific principles in determining the safety and effectiveness of functional foods and nutraceuticals is increasingly important. It is becoming increasingly evident that genomic research technologies will be used in the coming years and there is a need to provide resources that will facilitate this growth. This book incorporates the most recent advances in the three major sectors of the field within one volume. Genomics, proteomics, and metobolomics represent three major scientific research areas that contribute to nutraceutical and functional food research for studies of effectiveness and safety.

Wild Plants, Mushrooms and Nuts: Functional Properties and Food Applications is a compendium of current and novel research on the chemistry, biochemistry, nutritional and pharmaceutical value of traditional food products, namely wild mushrooms, plants and nuts, which are becoming more relevant in diets, and are especially useful for developing novel health foods and in modern natural food therapies. Topics covered will range from their nutritional value, chemical and biochemical characterization, to their multifunctional applications as food with beneficial effects on health, though their biological and pharmacological properties (antioxidant, antibacterial, antifungal, antitumor capacity, among others).

Supporting initiation, development and resolution of appropriate immune responses is key to survival. Many nutrients and dietary components have been purported to have a role in supporting optimal immune function. This is vital throughout the life course, from the development and programming of the immune system in early life, to supporting immunity and reducing chronic inflammation in older people. In this special issue of Nutrients, we examine the evidence for the role of diet and dietary components in promoting protective immunity.

Nutrition and the Ascent of Humankind

Nutritional Genomics

Clinical Aspects of Functional Foods and Nutraceuticals

Genetic Variation and Dietary Response

Personalized Nutrition

Nutrigenomics and Nutrigenetics in Functional Foods and Personalized Nutrition

Functional and Medicinal Beverages, Volume Eleven, in the Science of Beverages series, discusses one of the fastest growing sectors in the food industry. As the need for research and development increases based on consumer demand, the information in this volume is essential. This reference includes the latest research trends, nutritive and medicinal ingredients, and analytical techniques to identify health beneficial elements. The contents of the book will bring readers up-to-date on the field, thus making it useful for researchers and graduate students in various fields across the food sciences and technology. Highlights new concepts, innovative technologies and current concerns in the functional beverages field Covers detailed information on the engineering and processing of novel ingredients for health benefits Includes common and alternative ingredients for juices, vegetable blends, milk-based drinks, and probiotic and prebiotic based alternative beverages

This textbook is a practical guide to the application of the philosophy and principles of Integrative and Functional Medical Nutrition Therapy (IFMNT) in the practice of medicine, and the key role nutrition plays in restoring and maintaining wellness. The textbook provides an overview of recent reviews and studies of physiological and biochemical contributions to IFMNT and address nutritional influences in human heath overall, including poor nutrition, genomics, environmental toxicant exposures, fractured human interactions, limited physical movement, stress, sleep deprivation, and other lifestyle factors. Ultimately, this textbook serves to help practitioners, healthcare systems, and policy makers better understand this different and novel approach to complex chronic disorders. It provides the reader with real world examples of applications of the underlying principles and practices of integrative/functional nutrition therapies and presents the most up-to-date intervention strategies and clinical tools to help the reader keep abreast of developments in this emerging specialty field. Many chapters include comprehensive coverage of

the topic and clinical applications with supplementary learning features such as case studies, take-home messages, patient and practitioner handouts, algorithms, and suggested readings. Integrative and Functional Medical Nutrition Therapy: Principles and Practices will serve as an invaluable guide for healthcare professionals in their clinical application of nutrition, lifestyle assessment, and intervention for each unique, individual patient.

Functional foods are foods which contain bioactive components, either from plant or animal sources, which can have health benefits for the consumer over and above their nutritional value. Foods which have antioxidant or cancer-combating components are in high demand from health conscious consumers: much has been made of the health-giving qualities of fruits and vegetables in particular. Conversely, foods which have been processed are suffering an image crisis, with many consumers indiscriminately assuming that any kind of processing robs food of its “natural goodness”. To date, there has been little examination of the actual effects - whether positive or negative - of various types of food processing upon functional foods. This book highlights the effects of food processing on the active ingredients of a wide range of functional food materials, with a particular focus on foods of Asian origin. Asian foods, particularly herbs, are becoming increasingly accepted and demanded globally, with many Western consumers starting to recognize and seek out their health-giving properties. This book focuses on the extraction of ingredients which from materials which in the West are seen as “alternative” - such as flour from soybeans instead of wheat, or bran and starch from rice - but which have long histories in Asian cultures. It also highlight the incorporation of those bioactive compounds in foods and the enhancement of their bioavailability. Functional Foods and Dietary Supplements: Processing Effects and Health Benefits will be required reading for those working in companies, research institutions and universities that are active in the areas of food processing and agri-food environment. Food scientists and engineers will value the new data and research findings contained in the book, while environmentalists, food regulatory agencies and other food industry personnel involved in functional food production or development will find it a very useful source of information.

Nutrigenetics: Applying the Science of Personal Nutrition provides a fully referenced, readable guide to understanding the rationale and importance of nutrigenetic applications and explains why single nutrition recommendations will not fit everybody or even a majority of modern humans.

This books explains how genetic variation shapes individual nutrition requirements and sensitivities, presents questions to ask about reported gene-nutrient interactions, and what needs to be done before putting nutrigenetic tests to practical use. This book blends key concepts from the fields of genetics, biochemistry, epidemiology, public health, and clinical medicine to give a rich perspective on the genetically diverse nutritional needs and sensitivities of individuals in health and disease. A steadily increasing number of people order genetic tests to find out what they should eat for better health, well being and performance, and an even greater number asks their healthcare providers about such tests. Most of the currently offered tests are not grounded in current knowledge, often absurdly so, but few professionals can explain why they are misguided. On the other hand, there are more evidence-supported genetic variants that can guide nutrition decisions, but again most healthcare providers know little about them, much less use them in their daily practice. There is a great need for a solidly evidence-based yet accessible book that explains the science of nutrigenetics and provides the tools to evaluate new nutrigenetic tests. Comprehensive coverage of the emerging science of nutritional genetics and its promise for individually tailored nutrition guidance Presents practical examples to enhance comprehension and spur additional research Offers a logical progression from what nutrigenetics is, to its possibilities in enhancing health

Volume 11: The Science of Beverages

Omic Strategies and Applications in Food Science

Processing Effects and Health Benefits

THE NEW SCIENCE OF FEEDING YOUR DOG FOR OPTIMUM HEALTH

Functional Food and Human Health

Advances in Nutraceutical Applications in Cancer: Recent Research Trends and Clinical Applications

Dietary supplements and nutraceuticals such as Vitamin A and D, Omega-3 and probiotics are used as part of the cancer treatment as complimenting the main therapy. Several Nutraceuticals have shown to boost the immune responses, while emerging clinical studies and other research suggests that some plant-based agents may, indeed, impact late-stage cancer, influencing molecular processes corrupted by tumor cells to evade detection, expand clonally, and invade surrounding tissues. Advances in Nutraceutical Applications in Cancer: Recent Research Trends and Clinical Applications is an attempt to collect evidence and related clinical information of application of Nutraceuticals to be used in cancer treatment or compliment the cancer treatment. It contains 16 chapters written by experts in related field's and covers many different aspects of the formulation and development of Nutraceuticals for cancer applications. This book covers efficacy, safety and toxicological aspects of nutraceuticals. It also addresses various novel drug delivery systems of nutraceuticals with anticancer properties, as well as nutraceuticals as supplements for cancer prevention. Features: Offers a comprehensive view of nutraceuticals' role in cancer prevention and treatment Covers the applications and implications of nutraceuticals in prostate, colorectal, breast and gynecological cancers Discusses the principles of nutrigenomics and nutrigenetics in cancer prevention Explores the role of probiotics and micronutrients in cancer treatment and prevention Nutraceuticals can alter the gut microbiota. Gut microbiome undergoes changes during the disease status and followed by the cancer treatment. Nutraceutical's role in proliferation and prevention of gynecological cancers, nutraceutical's role in proliferation and prevention of prostate cancer and role of micronutrients in cancer prevention, both pros and cons, are some of the topics discussed in various chapters in this book. This book is addressed to scientists, clinicians, and students who are working in the area of Nutraceutical applications in cancer treatment.

The integration of biology, genomics, and health has opened the possibility of applying genomics technology to nutrition. In 2001, scientists associated with the Human Genome Project announced the successful mapping of the reference sequence of the human genome. Since then, a body of information has emerged. Genomics and related areas of research have contributed greatly to efforts to understand the cellular and molecular mechanisms underlying diet-disease relationships. Integration and application of genetic and genomics technology into nutrition research is, therefore, needed to develop nutrition research programs that are aimed at the prevention and control of chronic disease through genomics-based nutritional interventions. Of interest is the integration of relevant computational methods into nutritional genomics research; the enhancement of tools applicable to systems biology; and the effective dissemination of genomics-derived information to scientists, policy makers, and the interested public. To address these issues, a workshop was held on June 1 and 2, 2006. The workshop included presentations that were structured around three focus sessions: human genetic variation, epigenetics, and systems biology. A fourth session presented discussions on the implications of nutrigenomics for the future of nutrition science research. Numerous themes emerged from the workshop presentations. First, nutrigenomics is a complex field because it addresses issues related to multigenetic traits that can be modified by a number of nutritional and other environmental factors. Such complexity presents a challenge to the field; and the ensuing research opportunities will require cooperative work among scientific disciplines and across government, academic, and industrial centers, as well as adequate funding, to be realized. Additionally, the ability to stretch the limits of conventional research methodologies afforded by new genetic and genomic applications at the level of the individual opens the door to a wealth of potential benefits to areas such as disease prevention and wellness, bearing in mind the necessity of ethical safeguards. This potential, however, must be wisely exploited to avoid the pitfalls of overpromising research results and prematurely setting unrealistic expectations for beneficial outcomes. Finally, careful and rigorous research must be employed to optimize outcomes and assure acceptance by the scientific community. In summary, nutrition science is uniquely poised to serve as the crossroads for many disciplines and, using genomics tools, can bring this knowledge together to better understand and address diet-related chronic diseases and molecular responses to dietary factors.

In the last three decades, revolutionary achievements have taken place in nutraceutical and functional food research including the introduction of a number of cutting-edge dietary supplements supported by human clinical trials and strong patents. Novel manufacturing technologies including unique extraction processes, bioavailability improvements through delivery technologies such as nanotechnology, and innovative packaging have been critical steps for their successful positioning in the marketplace and consumer acceptance worldwide. Nonetheless, mixed messages have emerged from both the scientific community and the media concerning the potential benefits of foods and nutrients in the treatment and prevention of disease. This confusion, in addition to existing marketed products making questionable health claims, have led health practitioners and consumers to become skeptical about nutritional claims of new and emerging food products. Clinical Aspects of Functional Foods and Nutraceuticals provides an extensive overview of the clinical aspects of functional foods and nutraceuticals. It contains information on both nutritional challenges and potential health benefits of functional foods and nutraceuticals. In addition to exploring the underpinning science, the book also focuses on food innovation, functional foods in human health, food-drug interactions, functional foods in medicine, the seed-to-clinic approach, global regulatory frameworks, challenges, and future directions. The book provides an essential overview of the clinical aspects surrounding functional foods and nutraceuticals for key stakeholders, drawing links between areas of knowledge that are often isolated from each other. This form of knowledge integration will be essential for practice, especially for policy makers and administrators.

This book examines the toxicological and health implications of environmental epigenetics and provides knowledge through an interdisciplinary approach. Included in this volume are chapters outlining various environmental risk factors such as phtalates and dietary components, life states such as pregnancy and ageing, hormonal and metabolic considerations and specific disease risks such as cancer cardiovascular diseases and other non-communicable diseases. Environmental Epigenetics imparts integrative knowledge of the science of epigenetics and the issues raised in environmental epidemiology. This book is intended to serve both as a reference compendium on environmental epigenetics for scientists in academia, industry and laboratories and as a textbook for graduate level environmental health courses. Environmental Epigenetics imparts integrative knowledge of the science of epigenetics and the issues raised in environmental epidemiology. This book is intended to serve both as a reference compendium on environmental epigenetics for scientists in academia, industry and laboratories and as a textbook for graduate level environmental health courses.

Nutrigenomics and Proteomics in Health and Disease

Oxford Handbook of Nutrition and Dietetics

Functional Foods in Cancer Prevention and Therapy

Concepts of functional foods

The Connection Between Nutrition, Health, and Food Science

Cancer Treatment

The evidence is becoming stronger for a direct link between increased genome/epigenome damage and increased risk for adverse health outcomes. It is clear micronutrients are critical as cofactors for many cellular functions such as DNA repair enzymes or DNA oxidation. The field of Nutrigenomics has been the focus of research because it provides an opportunity to apply genomics knowledge in nutrition research, making the associations between specific nutrients and gene expressions which has significant relevance clinically and can be applied in disease prevention. This book brings a new perspective on disease prevention strategy based on the genomic knowledge of individuals and their diet.

For the first time, international scientists describe the advances in genetics and nutrition by combining methods of molecular biology with those of functional genetics, also known as systems biology. This book provides the latest data on genetic variation and dietary response, nutrients and gene expression, and the contribution molecular biology has given to systems biology. It also includes a comprehensive critique of genetic association studies in defining the risk of chronic diseases and concludes that molecular diagnostic tests will eventually affect every area of health care from individual risk prediction, early diagnosis of disease, and determination of optimal treatment regimens, to monitoring treatment effectiveness. The appendix contains an extensive glossary of the newly emerging terminology, as well as recommendations for genetic screening. This publication is an essential tool for the future work of all physicians, nutritionists, dietitians, geneticists, physiologists, molecular biologists, anthropologists, food technologists, policy makers, ethicists and educators.

This fascinating book draws it subject matter from a range of relevant disciplines that extend from molecular nutrition, nutritional sciences, and nutrition dietetics through to genetics, genomics, and anthropology. It presents a vital portrait of the absolutely fundamental role that nutrition has played and continues to play in shaping who and what human beings are, as well as where they evolved from, and where they may be heading as a species. Molecular Nutrition: Nutrition and the Evolution of Humankind: Blends coverage of the molecular mechanisms that underpin nutrient-gene interactions with evolutionary theory Takes a molecular biological approach to problem solving, and moves nutrition away from its dietetic and anthropological origins to the front lines of genomic research Covers key concepts in molecular biology; the –omics revolution and bioinformatics; recent human evolution; molecular mechanisms of gene-nutrient interactions; the importance of nutrients and genomics in disease; the evolution of micronutrient metabolism, protein structure, and human disease; nutrients and the human lifecycle; contemporary dietary patterns; leading-edge laboratory tools in nutrigenomics and human evolutionary studies Written by an internationally recognised expert in the field, Molecular Nutrition: Nutrition and the Evolution of Humankind is an invaluable text and reference book for a wide range of teachers, students, and researchers.

This timely volume focuses on genetics and nutrition, and their interaction in the development of chronic diseases. Knowledge of genetic susceptibility to disease will not only help to identify those at higher risk for disease but also to ascertain their response to diet. The prospect of targeting specific dietary treatment at those predicted to gain the most therapeutic benefit clearly has important clinical and economic consequences, particularly in diseases of high prevalence. This book is unique in considering genetic variation in susceptibility to disease, and the importance of specific diets in influencing lipid levels in cardiovascular disease and bone density in osteoporosis. The contributions emphasize that dietary response is dependent on the genetic variant and that specific dietary recommendations rather than universal ones are needed for the prevention and management of chronic diseases. Bringing together vital information for the first time, this book is important reading for physicians, nutritionists, dietitians, geneticists, physiologists, molecular biologists, food technologists and policymakers.

A Breakthrough Program to Treat the Root Cause of Illness and Optimize Your Health

Functional Foods

Integrative and Functional Medical Nutrition Therapy

Towards a Systems-Level Understanding of Gene-diet Interactions

Fundamentals of Individualized Nutrition

Nutrigenomics and Beyond

Most oral diseases are preventable, yet they remain the most globally common noncommunicable disorders, affecting people throughout their lifetime. Lifestyle, including diet and food choice, is central to the occurrence of oral disease. Nutrition and diet can impact the development and status of the oral cavity as well as the progression of illness. Also, poor oral health can influence the ability to eat and, consequently, to maintain an adequate diet and nutrient balance. This book, consisting of 14 chapters, provides current information on the impact of nutrients (macro- and micro-elements and vitamins) and diet on oral health and vice versa (i.e., the impact of oral health on diet/nutrition). It also reviews possible oral health effects of probiotics as well as relationships between genotype and diet, which are important for determining oral disease risk. This book is a helpful resource for under- and postgraduate students. It will also be useful to dentists and nutritionists/dietitians as they integrate nutrition education into medical practice.

Instant National Bestseller After suffering for years with unexplainable health issues, Dr. Ben Lynch discovered the root cause—“dirty” genes. Genes can be “born dirty” or merely “act dirty” in response to your environment, diet, or lifestyle—causing lifelong, life-threatening, and chronic health problems, including cardiovascular disease, autoimmune disorders, anxiety, depression, digestive issues, obesity, cancer, and diabetes. Based on his own experience and successfully helping thousands of clients, Dr. Lynch shows you how to identify and optimize both types of dirty genes by cleaning them up with targeted and personalized plans, including healthy eating, good sleep, stress relief, environmental detox, and other holistic and natural means. Many of us believe our genes doom us to the disorders that run in our families. But Dr. Lynch reveals that with the right plan in place, you can eliminate symptoms, and optimize your physical and mental health—and ultimately rewrite your genetic destiny.

Awareness of the influence of our genetic variation to dietary response (nutrigenetics) and how nutrients may affect gene expression (nutrigenomics) is prompting a revolution in the field of nutrition. Nutrigenetics/Nutrigenomics provide powerful approaches to unravel the complex relationships among nutritional molecules, genetic variants and the biological system. This publication contains selected papers from the '3rd Congress of the International Society of Nutrigenetics/Nutrigenomics' held in Bethesda, Md., in October 2009. The contributions address frontiers in nutrigenetics, nutrigenomics, epigenetics, transcriptomics as well as non-coding RNAs and posttranslational gene regulations in various diseases and conditions. In addition to scientific studies, the challenges and opportunities facing governments, academia and the industry are included. Everyone interested in the future of personalized medicine and nutrition or agriculture, as well as researchers in academia, government and industry will find this publication of the utmost interest for their work.

Cancer Treatment: Conventional and Innovative Approaches is an attempt to integrate into a book volume the various aspects of cancer treatment, compiling comprehensive reviews written by an international team of experts in the field. The volume is presented in six sections: i) Section 1: Cancer treatment: Conventional and innovative pharmacological approaches; ii) Section 2: Combinatorial strategies to fight cancer: Surgery, radiotherapy, backtherapy, chemotherapy, and hyperthermia; iii) Section 3: The immunotherapy of cancer; iv) Section 4: Multidisciplinarity in cancer therapy: nutrition and beyond; v) Section 5: Supportive care for cancer patients; vi) Section 6: Perspectives in cancer biology and modeling. Ultimately, we hope this book can enlighten important issues involved in the management of cancer, summarizing the state-of-the-art knowledge regarding the disease control and treatment; thus, providing means to improve the overall care of patients that daily battle against this potentially lethal condition.

Nutrition Essentials for Mental Health: A Complete Guide to the Food-Mood Connection

Functional Food Properties and Applications

Environmental Epigenetics

Principles and Practices

Functional and Medicinal Beverages

Nutrigenomics and Nutraceuticals

Global health and the increasing incidence of various diseases are a cause for concern, and doctors and scientists reason that the diet, food habits and lifestyle are contributing factors. Processed food has reduced the nutritional value of our diet, and although supplementing foods with various additives is considered an alternative, the long-term impact of this is not known. Many laboratories around the world are working to identify various nutritional components in our daily food and their effect on human health. These have been classified as Nutraceuticals or functional food, and they may have preventive and therapeutic effects in a number of pathologies associated with modern dietary habits and lifestyles. This book addresses various aspects of this issue, revitalizing the discussion and consolidating the latest research on nutritional and functional food and their effects in in-vitro, in-vivo and human clinical studies.

The new science of nutrigenomics and its ethical and societal challenges Gene-diet interactions--which underlie relatively benign lactose intolerance to life-threatening conditions such as cardiovascular disease--have long been known. But until now, scientists lacked the tools to fully understand the underlying mechanisms that cause these conditions. In recent years, however, strides in human genomics and the nutritional sciences have allowed for the advancement of a new science--dubbed nutrigenomics. Although this science may lead to personalized nutrition and dietary recommendations that can mitigate, prevent, or cure sickness, current oversight mechanisms and regulations for emerging direct-to-public nutrigenomic tests are

still in their infancy. Science, Society, and the Supermarket: The Opportunities and Challenges of Nutrigenomics discusses the many ethical, legal, and social challenges presented by nutrigenomics. Concerning itself with the basic uses of nutrigenomic research as well as its clinical and commercial aspects, this text sheds light on such issues as: * Opportunities and challenges for nutrigenomics * The science of nutrigenomics * The ethics of nutrigenomic tests and information both in a clinical setting and by private third parties * Alternatives for nutrigenomics service delivery * Nutrigenomics and the regulation of health claims for foods and drugs * Equity and access to nutrigenomics in industrialized and developing countries * Intellectual property issues By taking a proactive bioethical stance on the subject, Science, Society, and the Supermarket offers a thorough and timely analysis on both the benefits and risks of nutrigenomics. Along with a thought-provoking examination of the issues, this book provides ethical guidelines and recommendations for further study in policy and regulatory development.

Nutrigenomics is the new science of how diet affects gene expression at the cellular level, creating vibrant health or chronic disease. Optimum health begins in the cells—and this book shows you how to achieve it for your dog!

Diet and Immune Function

Clinical Relevance and Disease Prevention

Foodomics

Conventional and Innovative Approaches

Nutrigenetics and Nutrigenomics

Nutrition and Genomics