Nutritional epigenomics is an emerging subject that has been implicated in disease risk and prevention. Epigenetics has been a concern in cancer research for the last 3 decades, but only in recent years has interest in its connection to other fields developed, including cardiovascular and neurodegenerative diseases, obesity, diabetes and nutrition. Epigenetics is generally used to refer to heritable changes in gene expression that are not accompanied by alterations in DNA sequence. Because epigenetic marks are potentially reversible and are implicated in the pathogenesis of diverse non-communicable diseases representing major public health problems in both developed and developing countries, the epigenome is an attractive target for nutritional intervention. Indeed, accumulating evidence shows that epigenetic processes can be influenced by nutritional components; Nutritional modulation of epigenetic processes thus adds a further layer of complexity to gene-nutrient interactions and should be considered for the definition of strategies for health promotion and disease prevention. This publication presents four review papers that address the impact of nutritional epigenomics on disease risk and prevention in various settings. It thus provides stimulating reading for anyone interested in the field.
Contents
Preface
Poems: Peterson, J.H.
Action Plan for a Healthy Agriculture, Healthy Nutrition, Healthy People: Simopoulos, A.P.; Froneman, G.; Bourne, P.G.
Keywords: Keywords: Froneman, G.; Bourne, P.G.
Part I
Importance of the Omega-6/Omega-3 Balance in Health and Disease Evolvement Aspects of Diet, Simopoulos, A.P.
The Omega-6/Omega-3 Fatty Acid Ratio in Chrones Diseases: Animal Models and Molecular Aspects: Kang, X.J.
All PUFAs Are Not Created Equal: Chen, X.-A., Nasr, N., Bao, S.-L., Yu, Y.-C.
Stress and Behavior: The Role of Nutrients: Leighton, F.; Echeverria, G.; Urquiaga, I.
From French to Mediterranean Diet: Importance of the Omega-6/Omega-3 Fatty Acid Ratio: Elia, B.; Gudelis, G.; Katai, J.
Part II
Diet and Mental Health: An Up-to-Date Analysis: Cooper, R.C.
The Chilean Diet and the Omega-6/Omega-3 Balance: Lewi, G.; Abarbanel, G.
Update of French Nutritional Recommendations for Fatty Acids: Lequain, D.; Martin, A.; Katan, B.
Genetics of the Adaptation to Exercise: Apovyan, T.; Lavender, J.; Diep, R.J.
Part III
Omega-3 Fatty Acids, Genetics and Nutritional Interactions in Cardiovascular Disease: De Caterina, R.
Dietary Omega-3 Fatty Acids, Genetic Variation and Risk of Breast and Prostate Cancer: Maureaum, J.; Paulus, F.; Fradet, V.
The Pasilan Diet: a Modern View on an Ancestral Healthy Lifestyle: Jinka, P.; de la Largier, M.
Part IV
Global Warming and Cardiovascular Health: The Gap: Froneman, G.
Climate Change and Its Impact on Food Nutrition Security and Food Safety in China: Li, D. H., Yap, K.S.
Climate Change and Its Potential Impact on the Nutritional Scenarios in South-East Asia: Gopalan, S.
Part V
Food and Nutrition Security in the Australia-New Zealand Region: Impact of Climate Change: Tang, C.; Lawrence, K.; Frank, S.; Flood, V.; McWan, A.; Butler, R.
Health-Oriented Agriculture for Nutritional Security versus Climate Change Risks in the Mediterranean Basin: Shapira, N.
Improving Milk Nutritional and Environmental Value with Flavor-Improved Genetically Modified Dairy Cows: Lambert, J.; Creenos, G.; Moros, G.; Guilleux, M.; Hocquing, N.; Wall, P.
Part VI
Food Industry Response to Nutritional Studies on Obesity: Foo, H.; Pan, W.; Vranic, L.
Part VII
Approaches for Evaluating Rare Polymorphisms in Genetic Association Studies: Li, Q.; Ang, H.; Zhang, H.; Yu, Y.; Cherkova, M.
Selected contributions
Fast and Robust Association Tests for Untyped SNPs in Case-Control Studies: Zeggini, E.
From the Swedish to the Mediterranean Diet and the Omega-6/Omega-3 Ratio: Mauermann, J.; Pouliot, F.; Fradet, V.
From the Swedish to the Mediterranean Diet and the Omega-6/Omega-3 Ratio: Ramsden, C.E.; Beyta, K.; Mankler, K.; de Mattos, H.
Evolutionary Aspects of the Omega-6/Omega-3 Ratio: Gauldie, J.; Barlow, S.J.; Morgan, M.
The First Carbon Neutral Extra Virgin Olive Oil in the World!: Kefalogiannis, A.; Gambogi, M.; Shapira, N.
Impact Factor: 2.337
More information at www.karger.com/hhe
• Pay-per-View and Subscriber Access to Full Text
• Full Table of Contents
• Full Editorial Board
• Free Abstracts and Selected Articles
• Online Sample Issue
• Submission/Guidelines for Authors
• Subscription Details
• Free Alert Service
• Online Library Recommendation

The importance of a balanced food supply for human health
Healthy Agriculture, Healthy Nutrition, Healthy People

Editor
Artemis P. Simopoulos

From the Swedish to the Mediterranean Diet and the Omega-6/Omega-3 Ratio: Leighton, F.; Echeverria, G.; Urquiaga, I.
From French to Mediterranean Diet: Importance of the Omega-6/Omega-3 Fatty Acid Ratio: Elia, B.; Gudelis, G.; Katai, J.
Stress and Behavior: The Role of Nutrients: Leighton, F.; Echeverria, G.; Urquiaga, I.
Part I
Importance of the Omega-6/Omega-3 Balance in Health and Disease Evolvement Aspects of Diet, Simopoulos, A.P.
The Omega-6/Omega-3 Fatty Acid Ratio in Chrones Diseases: Animal Models and Molecular Aspects: Kang, X.J.
All PUFAs Are Not Created Equal: Chen, X.-A., Nasr, N., Bao, S.-L., Yu, Y.-C.
Stress and Behavior: The Role of Nutrients: Leighton, F.; Echeverria, G.; Urquiaga, I.
From French to Mediterranean Diet: Importance of the Omega-6/Omega-3 Fatty Acid Ratio: Elia, B.; Gudelis, G.; Katai, J.
Part II
Diet and Mental Health: An Up-to-Date Analysis: Cooper, R.C.
The Chilean Diet and the Omega-6/Omega-3 Balance: Lewi, G.; Abarbanel, G.
Update of French Nutritional Recommendations for Fatty Acids: Lequain, D.; Martin, A.; Katan, B.
Genetics of the Adaptation to Exercise: Apovyan, T.; Lavender, J.; Diep, R.J.
Part III
Omega-3 Fatty Acids, Genetics and Nutritional Interactions in Cardiovascular Disease: De Caterina, R.
Dietary Omega-3 Fatty Acids, Genetic Variation and Risk of Breast and Prostate Cancer: Maureaum, J.; Paulus, F.; Fradet, V.
Part IV
Food Industry Response to Nutritional Studies on Obesity: Foo, H.; Pan, W.; Vranic, L.
Part VII
Approaches for Evaluating Rare Polymorphisms in Genetic Association Studies: Li, Q.; Ang, H.; Zhang, H.; Yu, Y.; Cherkova, M.
Selected contributions
Fast and Robust Association Tests for Untyped SNPs in Case-Control Studies: Zeggini, E.
From the Swedish to the Mediterranean Diet and the Omega-6/Omega-3 Ratio: Mauermann, J.; Pouliot, F.; Fradet, V.
From the Swedish to the Mediterranean Diet and the Omega-6/Omega-3 Ratio: Ramsden, C.E.; Beyta, K.; Mankler, K.; de Mattos, H.
Evolutionary Aspects of the Omega-6/Omega-3 Ratio: Gauldie, J.; Barlow, S.J.; Morgan, M.
The First Carbon Neutral Extra Virgin Olive Oil in the World!: Kefalogiannis, A.; Gambogi, M.; Shapira, N.
Impact Factor: 2.337
More information at www.karger.com/hhe
• Pay-per-View and Subscriber Access to Full Text
• Full Table of Contents
• Full Editorial Board
• Free Abstracts and Selected Articles
• Online Sample Issue
• Submission/Guidelines for Authors
• Subscription Details
• Free Alert Service
• Online Library Recommendation

The importance of a balanced food supply for human health
Healthy Agriculture, Healthy Nutrition, Healthy People

Editor
Artemis P. Simopoulos

From the Swedish to the Mediterranean Diet and the Omega-6/Omega-3 Ratio: Leighton, F.; Echeverria, G.; Urquiaga, I.
From French to Mediterranean Diet: Importance of the Omega-6/Omega-3 Fatty Acid Ratio: Elia, B.; Gudelis, G.; Katai, J.
Stress and Behavior: The Role of Nutrients: Leighton, F.; Echeverria, G.; Urquiaga, I.
Part I
Importance of the Omega-6/Omega-3 Balance in Health and Disease Evolvement Aspects of Diet, Simopoulos, A.P.
The Omega-6/Omega-3 Fatty Acid Ratio in Chrones Diseases: Animal Models and Molecular Aspects: Kang, X.J.
All PUFAs Are Not Created Equal: Chen, X.-A., Nasr, N., Bao, S.-L., Yu, Y.-C.
Stress and Behavior: The Role of Nutrients: Leighton, F.; Echeverria, G.; Urquiaga, I.
From French to Mediterranean Diet: Importance of the Omega-6/Omega-3 Fatty Acid Ratio: Elia, B.; Gudelis, G.; Katai, J.
Part II
Diet and Mental Health: An Up-to-Date Analysis: Cooper, R.C.
The Chilean Diet and the Omega-6/Omega-3 Balance: Lewi, G.; Abarbanel, G.
Update of French Nutritional Recommendations for Fatty Acids: Lequain, D.; Martin, A.; Katan, B.
Genetics of the Adaptation to Exercise: Apovyan, T.; Lavender, J.; Diep, R.J.
Part III
Omega-3 Fatty Acids, Genetics and Nutritional Interactions in Cardiovascular Disease: De Caterina, R.
Dietary Omega-3 Fatty Acids, Genetic Variation and Risk of Breast and Prostate Cancer: Maureaum, J.; Paulus, F.; Fradet, V.
Part IV
Food Industry Response to Nutritional Studies on Obesity: Foo, H.; Pan, W.; Vranic, L.
Part VII
Approaches for Evaluating Rare Polymorphisms in Genetic Association Studies: Li, Q.; Ang, H.; Zhang, H.; Yu, Y.; Cherkova, M.
2. Statement for Authors Submitting Original Research or Case Report: “The enclosed manuscript...” has been approved by me as well as the responsible authorities at the institution where the work has been carried out. I certify that none of the material in this manuscript has been published previously in any form and that none of this material is currently under consideration for publication elsewhere. This includes symposia and proceedings of meetings and preliminary publications of any kind except an abstract of 400 words or less. (To be signed by all authors.)

3. The undersigned also confirm that they qualify for (co-)authorship according to the Uniform Requirements for Manuscripts published in the guidelines of the ‘International Committee of Medical Journal Editors’ in 1988 as follows: Authorship credit should be based on substantial contributions to (a) conception and design, or analysis and interpretation of data; (b) drafting the article or revising it critically for important intellectual content; and on (c) final approval of the version to be published. Contributions (a), (b), and (c) must all be met. Participation solely in the acquisition of funding or the collection of data does not justify authorship. General supervision of the research group is also not sufficient for authorship. Any part of an article critical to its main conclusions must be the responsibility of at least one author. Persons who have contributed intellectually to the article but whose contributions do not justify authorship may be named and their particular contribution described in the section ‘Acknowledgements’. Such persons must give their permission to be named.

Arrangement
Title page: The title page of each page should indicate the title, the authors’ names, the institute where the work was conducted, and a short title for use as running head.

Full text: The exact postal address of the corresponding author complete with postal code must be given at the bottom of the title page. Please also supply phone and fax numbers, as well as e-mail address.

Key words: Please supply 3–10 key words in English that reflect the content of the paper.

Abstract: Each paper needs an abstract of up to 200 words. It should be structured as follows:

Background/Aims: What is the major problem that the paper addresses?

Methods: How was the study performed?

Results: Most important findings?

Conclusion: Most important conclusions?

Footnotes: Avoid footnotes.

Tables and illustrations: Tables and illustrations (both numbered in Arabic numerals) should be prepared on separate pages. Tables require a heading and figures a legend, also prepared on a separate page. Avoid footnotes. Avoid numbers in headings. A figure’s background should not be submitted. When possible, group several illustrations in one block for reproduction (max. size 180 x 223 mm) or provide crop marks. Each illustration must be labelled with its number and the first author’s name. B/w half-tone and color illustrations must have a final resolution of 300 dpi after scaling, line drawings one of 800–1,200 dpi. File names must not be embedded in a document file but submitted separately (see detailed instructions on the Submission Website at www.karger.com/jnn).

Color illustrations
Online edition: Color illustrations are reproduced free of charge. In the print version, the illustrations are reproduced in black and white. Please avoid referring to the colors in the text and figure legends.

Print edition: Up to 6 color illustrations per page can be integrated within the text at CHF 800.– per page.

References: In the text identify references by Arabic numerals [in square brackets]. Material submitted for publication but not yet accepted should be noted as ‘unpublished data’ and not be included in the reference list. The list of references should include only previously published material that is essential for understanding the present description. Figures with a screen background should not be submitted. When possible, group several illustrations in one block for reproduction (max. size 180 x 223 mm) or provide crop marks. Each illustration must be labelled with its number and the first author’s name. B/w half-tone and color illustrations must have a final resolution of 300 dpi after scaling, line drawings one of 800–1,200 dpi. File names must not be embedded in a document file but submitted separately (see detailed instructions on the Submission Website at www.karger.com/jnn).

Examples
(b) Papers published only with DOI numbers: Chatel JM, Péron TC, Bouscher S, et al.: Serum interleukin-6 re- flects disease severity and osteoporosis in mastocytosis patients. Int Arch Allergy Immunol DOI: 10.1159/000063658.

Digital Object Identifier (DOI)
Karger’s online services supports DOIs as unique identifiers for articles. A DOI number will be printed on the title page of each article. DOIs can be useful in the future for identifying and citing articles published online without volume or issue information. More information can be found at www.doi.org.

Supplementary Material
Supplementary material is restricted to additional data that are not necessary for the scientific integrity and conclusions of the paper. Please note that all supplementary files will undergo editorial review and should be submitted together with the original manuscript. The Editors reserve the right to limit the scope and length of the supplementary material. Supplementary material must meet production quality standards for Web publication without the need for any modification or editing. In general, supplementary files should not exceed 10 MB in size. All figures and tables should have titles and legends. Color illustrations must have a final resolution of 300 dpi after scaling, line drawings one of 800–1,200 dpi. File names must not be embedded in a document file but submitted separately (see detailed instructions on the Submission Website at www.karger.com/jnn).

Color illustrations
Online edition: Color illustrations are reproduced free of charge. In the print version, the illustrations are reproduced in black and white. Please avoid referring to the colors in the text and figure legends.

Print edition: Up to 6 color illustrations per page can be integrated within the text at CHF 800.– per page.

References: In the text identify references by Arabic numerals [in square brackets]. Material submitted for publication but not yet accepted should be noted as ‘unpublished data’ and not be included in the reference list. The list of references should include only previously published material that is essential for understanding the present description. Figures with a screen background should not be submitted. When possible, group several illustrations in one block for reproduction (max. size 180 x 223 mm) or provide crop marks. Each illustration must be labelled with its number and the first author’s name. B/w half-tone and color illustrations must have a final resolution of 300 dpi after scaling, line drawings one of 800–1,200 dpi. File names must not be embedded in a document file but submitted separately (see detailed instructions on the Submission Website at www.karger.com/jnn).

Examples
(b) Papers published only with DOI numbers: Chatel JM, Péron TC, Bouscher S, et al.: Serum interleukin-6 re- flects disease severity and osteoporosis in mastocytosis patients. Int Arch Allergy Immunol DOI: 10.1159/000063658.

Self-Archiving
Karger permits authors to archive their pre-prints (i.e. pre- refereeing) or post-prints (i.e. final draft post-refereeing) on their personal or institution’s servers, provided the following conditions are met. Articles may not be used for commercial purposes, must be linked to the publisher’s version, and must acknowledge the publisher’s copyright. Authors selecting Karger’s Author’s Choice feature, however, are also permitted to archive the final, published version of their article, which includes copyrighting and design improvements as well as citation links.

Page Charges
There are no page charges for papers of 5 or fewer printed pages (including tables, illustrations and references). Each additional complete or partial page is charged to the author at CHF 225.– per page for papers up to 10 pages. Karger’s Author’s Choice option implies an additional charge.

Reprints
Orders and a price list are sent with the proofs. Orders submitted after the issue is printed are subject to considerably higher prices.

Guidelines for Authors
Early Life Origins of Human Health and Disease

Editors
John P. Newnham
Michael G. Ross

Contents
Preface: Newnham, J.P.; Ross, M.G.
Developmental Plasticy and the Developmental Origins of Health and Disease: Gluckman, P.D.; Hanson, M.A.
Epigenetics and the Influence of Maternal Diet: Lillycrop, K.A.; Hanson, M.A.; Burdge, G.C.
Nuritional Interventions in Mothers to Improve the Health of the Offspring – Are We Ready?: Fall, C.H.D.; Harding, J.E.; Yajnik, C.S.
Early Environmental Influences on Lung Development: Implications for Lung Function and Respiratory Health throughout Life: Harding, R.; Smibson, K.; O’Reilly, M.; Maritz, G.

Developmental Origins of Musculoskeletal Disease: Cooper, C.; Alhie Sayer, A.; Mishra, G.; Kuh, D.
Developmental Origins of Immune Tolerance: Pathways and Influences: Prescott, S.L.
Developmental Programming of the Kidney: Niljand, M.J.; Nathanielsz, P.W.
Perinatal Appetite Programming: Desai, M.; Keen-Rhinehart, E.; Ross, M.G.
Fetal Programming of Type 2 Diabetes: Piekarz, A.; Oszman, S.E.
Developmental Origins of Diabetes: Interventional Strategies: Simmons, R.A.
Prenatal Risk Factors for Breast Cancer and Clues to the Underlying Biological Mechanisms from Animal and Human Studies: Trosi, R.; dos Santos Silva, I.; Newbold, R.
The Offspring of Women with Severe Mental Disorder: Morgan, V.A.; McGrath, J.; Hultman, C.M.; Zubrick, S.; Bower, C.; Croft, M.; Valuri, G.; Jablensky, A.V.
Approaches to Evaluate Gene-Environment Interactions Underlying the Developmental Origins of Health and Disease: Pennell, C.E.; Palmer, L.J.; Knight, B.S.; Belton, C.; Lye, S.J.

Author Index
Subject Index

www.karger.com/pediatrics

There is compelling evidence that many of the risks leading to the most frequent chronic diseases in adulthood originate in the earliest stages of life. Adverse environmental conditions in utero and during infancy can lead to negative health effects during the subsequent lifetime of the exposed individual. This book offers precious insights into the latest concepts and results from epidemiologic, clinical and basic studies in this burgeoning area of health care. The developmental origins of various diseases such as diabetes, obesity and cancer are examined, as well as the early programming of reproductive health and different organs. Attention is given to the impact of environmental factors such as nutrition and pollution, and the mediating genetic and epigenetic pathways are reviewed. A crucial point under discussion is the concept of environmental insults adversely affecting not only the exposed persons, but also their descendants. In addition, the economic consequences of a suboptimal start to life and the importance of preventive measures are stressed.

This publication is of great value to anyone interested in health care, notably to specialists in obstetrics, pediatrics, internal medicine, obesity, diabetes and heart disease.
Contents

See the journal website for contents
ESPEN Congress on Clinical Nutrition & Metabolism

Barcelona, Spain
8-11 September 2012

Achieving Goals in Nutrition

For more information, please contact the Congress Secretariat
ESPEN 2012
c/o MCI Suisse SA
Rue de Lyon 75
1211 Geneva 13
Switzerland
Phone +41 (0)22 33 99 595
Fax +41 (0)22 33 99 631
E-mail espen2012@mci-group.com

SAVE THE DATE

Barcelona

www.espen.org
IUNS 20th International Congress of Nutrition
GRANADA (SPAIN) SEPTEMBER 15-20, 2013
"Joining Cultures Through Nutrition"

www.icn2013.com

Technical Secretariat: Viajes Iberia Congresos
Edif. Orizone - C/ Plaça d' Europa, 17 - 19 1st Floor
08908 Hospitalet de Llobregat - Barcelona - Spain
T. +34 93 510 1005 - F. +34 93 510 1009
e-mail: icn2013@viajesiberia.com

The next International Scientific Conference on Probiotic and Prebiotics will be held during 12th - 14th June in the university city of Kosice, Slovakia.

The conference programme will focus on current advances in the science and research of probiotics and prebiotics, their present and future role in maintaining health and preventing diseases. IPC2012 will focus on evidence-based benefits as proven in clinical trials and scientific experiments.

Further to the health effect of beneficial microbes, new developments in their selection, identification, production, application and delivery will be discussed. Topical subjects as safety, regulatory issues and claim substantiation will be also addressed by internationally renowned experts.

The mission of IPC2012 is to provide a comprehensive scientific forum to all stakeholders of probiotics. The three day conference is a networking event for scientists, researchers, product developers, industry participants and regulatory officials who work with probiotics. The conference will also provide a platform for scientific exchange and discussion.

Meet those at IPC2012 who influenced the past, influence the present and most importantly will enable the future of probiotics.

It is the goal of IPC2012 to further explore the potential of already used and novel probiotics by disseminating latest results and new ways of probiotic research. In addition novel strains, controversial but scientifically solid ideas, approaches, visions will be presented, and worldwide co-operation between scientists and institutions facilitated.

Claim substantiation by means of sound scientific approach is particularly important when presenting probiotics to regulatory bodies worldwide. Hence it is a major challenge to prove health claims when developing and introducing new products to the market. The conference is a unique opportunity to meet leading scientists, researchers, product developers, regulatory experts who are capable of proving that probiotics work and are reliable means for maintaining health and preventing diseases.

For further information on the conference please visit www.probiotic-conference.net or contact the Organizing Secretariat of IPC2012. Phone: +421 917 858 838, e-mail: info@probiotic-conference.net
Opportunities and Challenges

Personalized Nutrition
Translating Nutrigenetic/Nutrigenomic Research into Dietary Guidelines

Editors
Artemis P. Simopoulos
John A. Milner

Contents

List of Contributors
Preface: Simopoulos, A.P.; Milner, J.A.
Opportunities and Challenges in Nutrigenetics/Nutrigenomics and Health: De Caterina, R.
Genome-Wide Association Studies and Diet: Ferguson, L.R.
Copy Number Variation, Eicosapentaenoic Acid and Neurological Disorders: With Particular Reference to Huntington’s Disease and Associated CAG Repeats, and to Myalgic Encephalomyelitis and Viral Infection: Puri, B.K.; Manku, M.S.
Nutrigenetics: A Tool to Provide Personalized Nutritional Therapy to the Obese: Martí, A.; Goyenechea, E.; Martínez, J.A.
Strategies to Improve Detection of Hypertension Genes: Hunt, S.C.
Diet, Nutrition and Modulation of Genomic Expression in Fetal Origins of Adult Disease: Jackson, A.A.; Burdge, G.C.; Lillycrop, K.A.
Choline: Clinical Nutrigenetic/Nutrigenomic Approaches for Identification of Functions and Dietary Requirements: Zeisel, S.H.

Dietary Polyphenols, Deacetylases and Chromatin Remodeling in Inflammation: Rahman, I.; Chung, S.
Dietary Manipulation of Histone Structure and Function: Ho, E.; Dashwood, R.H.
Changes in Human Adipose Tissue Gene Expression during Diet-Induced Weight Loss: Svensson, P.-A.; Gummesson, A.; Carlsson, L.M.S.; Sjöholm, K.
Toxicogenomics and Studies of Genomic Effects of Dietary Components: Thompson, K.
Dietary Methyl Deficiency, microRNA Expression and Susceptibility to Liver Carcinogenesis: Starlard-Davenport, A.; Tryndyk, V.; Kossy, O.; Ross, S.R.; Rusyn, I.; Beland, F.A.; Pogribny, I.P.
Redox Dysregulation and Oxidative Stress in Schizophrenia: Nutrigenetics as a Challenge in Psychiatric Disease Prevention: Do, K.Q.; Conus, P.; Cuenod, M.
Nutrigenomics and Agriculture: A Perspective: Spence, J.T.
Opportunities and Challenges in Nutrigenetics/Nutrigenomics: Building Industry-Academia Partnerships: Gillies, P.J.; Kris-Etherton, P.M.
Tailoring Foods to Match People’s Genes in New Zealand: Opportunities for Collaboration: Ferguson, L.R.; Hu, R.; Lam, W.J.; Munday, K.; Triggs, C.M.

A 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.
null
Impact of Nutritional Epigenomics on Disease Risk and Prevention

Nutritional epigenomics is an emerging subject that has been implicated in disease risk and prevention. Epigenetics has been a concern in cancer research for the last 3 decades, but only in recent years has interest in its connection to other fields developed, including cardiovascular and neurodegenerative diseases, obesity, diabetes and nutrition. Epigenetics is generally used to refer to heritable changes in gene expression that are not accompanied by alterations in DNA sequence. Because epigenetic marks are potentially reversible and are implicated in the pathogenesis of diverse non-communicable diseases representing major public health problems in both developed and developing countries, the epigenome is an attractive target for nutritional intervention. Indeed, accumulating evidence shows that epigenetic processes can be influenced by nutritional components; Nutritional modulation of epigenetic processes thus adds a further layer of complexity to gene-nutrient interactions and should be considered for the definition of strategies for health promotion and disease prevention. This publication presents four review papers that address the impact of nutritional epigenomics on disease risk and prevention in various settings. It thus provides stimulating reading for anyone interested in the field.