

Editorial

On behalf of the International Society of Nutrigenetics/Nutrigenomics (ISNN), I extend an invitation to you and your colleagues to join the ISNN and its journal. The purpose of the Society is to increase understanding through research on the role of genetic variation and dietary response and the role of nutrients in gene expression among both professionals and the general public.

The Aims of the Society shall be achieved through:

- promoting research on the role of genetic variation and dietary response and the role of nutrients in gene expression;
- defining the relationship between genes and nutrients from basic biology to clinical states, encompassing the areas of (1) genetic variation and dietary response, (2) the role of nutrients in gene expression, and (3) the role of genes in the determination of nutritional requirements;
- establishing a network of centers on genetics, nutrition and health worldwide;
- encouraging the development of programs for genetics and nutrition in departments of nutrition and genetics, and in schools of public health and medicine;
- serving as a clearing-house for the media in disseminating facts regarding the role of genetic variation and dietary response and the role of nutrients in gene expression;
- educating professionals and the public about the role of genetic variation and dietary response and the role of nutrients in gene expression;
- sponsoring regional and international meetings, and
- linking with other organizations which are national, regional or international, and joining efforts to promote the aims of the Society.

The Society is educational in its mission to serve as a focus for communicating among interested scientists working in nutrition, genetics, cellular and molecular biology, physiology, pathology, biochemistry, clinical med-

icine, and public health – who are studying the role of genetic variation and dietary response and the role of nutrients in gene expression. It is believed that improved communication across these different branches of medical and biological sciences will stimulate new research and increase knowledge of gene-nutrient interactions and genetic variation and dietary response. The ISNN will assist in interpreting the new facts into sound nutritional advice for the public. As needed, the Society will establish committees to handle scientific and educational aspects.

Recognizing that genetics deals with variation, a fundamental aspect of the genetics approach to disease is an appreciation of human variation: its nature and extent, its origin and maintenance, its distribution in families and populations, its interaction with environment, and its consequences for normal development and homeostasis. In the future, the focus will shift to prevention. It will be easier, indeed routine, to identify genetic predispositions in family members at risk, and probably those at risk in the population at large. As a consequence, it will be necessary to educate people at risk to the advantages of maintaining healthy lifestyles, avoiding risks, and seeking out preventive therapies. Furthermore, knowledge of genetic susceptibility to disease will help identify those at higher risk for disease, as well as their response to diet. The prospect of targeting specific dietary treatment to those predicted to gain the most therapeutic benefit clearly has important clinical and economic consequences, particularly in diseases of high prevalence such as coronary artery disease, hypertension, obesity, diabetes, osteoporosis, and possibly cancer.

There is no single universal approach for what we are calling the ‘lifestyle’ approach to diseases with genetic predisposition. The approach will have to vary with national dietary patterns and national economy. Therefore, it will be necessary to promote lifestyle patterns that will

be compatible with a healthier phenotypic expression of genotypes evolved under different conditions, which means individualized prescriptions and gene-based designer diets.

Genotyping will become part of the routine management of an expanding range of human diseases over the next 10 years and *nutrigenetics* will supplement *pharmacogenetics*. Knowing who is at risk would be useful if it meant that one could avoid the environmental triggers that convert susceptibility into disease.

We can contemplate how genetics and *nutrigenetics/nutrigenomics* will look in the future. Genetics will not remain the exclusive prerogative of regional genetic centers. Instead, every physician will need to use genetic knowledge and combine it with appropriate dietary regimens, type and amount of physical activity, and, if needed, drugs. For common adult onset conditions such as diabetes and circulatory disorders, the interaction between genes and the environment is starting to be understood and there is great interest in the potential for DNA diagnostics. Table 1 shows the progress in genetics in the 20th century and table 2 the expected achievements in the first quarter of the 21st century.

These are exciting times for all of us. The ISNN Board of Directors is very enthusiastic and grateful to Dr. Louis Pérusse for accepting the Editorship and congratulate him as Editor-in-Chief, and Dr. Marie-Claude Vohl, Co-Editor, and the Administrative Editor, Diane Drolet, for the speed in which they moved in organizing the Editorial Board and the first issue of the *Journal of Nutrigenetics and Nutrigenomics*. The Officers and Board of Directors of the ISNN and I would also like to thank the publisher, S. Karger AG (Medical and Scientific Publishers, Basel, Switzerland) for their support.

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President, ISNN

Table 1. Genetics: scientific progress in the 20th century

Four phases in the 20th century	
First quarter	Rediscovery of Mendel's Laws of Heredity and the establishment of the <i>cellular basis</i> of heredity and chromosomes
Second quarter	Defined the <i>molecular basis</i> of heredity: the DNA double helix
Third quarter	Unlocked the <i>informational basis</i> of heredity with the discovery of the biological mechanisms by which cells read the information contained in genes and with the invention of the recombinant DNA technologies of cloning and sequencing by which scientists can do the same
Fourth quarter	Decipher first genes and then entire genomes, spawning the field of <i>genomics, pharmagenomics, and nutrigenomics/nutrigenetics</i>

Table 2. Genetics: expectations for the 21st century

First quarter	Identify disease/gene associations for many illnesses and gene functions Expand <i>nutrigenomics</i> and <i>pharmacogenomics</i> (treatment and prevention) Responsiveness to interventions (nutrients and drugs) will be predicted, since variation in the responses is often attributable to the genetic profile of the individual Individualize prescriptions, diets, and lifestyle modifications and/or drug treatment Develop gene-based designer diets for coronary artery disease, hypertension, diabetes, arthritis, asthma, and mental health, for example
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