

**Living Well to 100:
Is Inflammation Central to Aging?
Conference at Tufts University, Boston , MA
November 6 and 7, 2006**

This is the second conference on this subject of Living Well to 100 (www.wellnessto100.org) and was attended by healthcare professionals and scientific researchers from medicine, nutrition, industry, and government who are focused on delivery of care and innovations to extend healthy aging. This program was supported in part by educational grants from Interleukin Genetics, Inc. and Nutrilite Health Institute.

1. Background

Several of the faculty started their powerpoint presentations with a picture of the cover of Time Magazine April 23, 2004 “The Secret Killer: The surprising link between Inflammation and Heart Attacks, Cancer, Alzheimer’s and other diseases”. The first two doctors quoted in the article were on the faculty at this conference.

Some quotes from the cover article:

“Suddenly, inflammation has become one of the hottest areas of medical research. Hardly a week goes by without the publication of yet another study uncovering a new way that chronic inflammation does harm to the body..... Instead of different treatments for, say, heart disease, Alzheimer’s and colon cancer, there might be a single, inflammation-reducing remedy that would prevent all three.”

2. Selected Conference Quotes: (these are listed in order of the presentations)

“An undesired inflammatory response characterizes several common diseases associated with aging, including vascular diseases....Mastery of the biology of inflammation may yield new opportunities for therapeutic intervention: lifestyle, nutritional, and pharmaceutical.” Peter Libby, MD, Chief, Cardiovascular Medicine, Brigham & Women’s Hospital.

“Inflammation is now recognized as a major etiologic determinant of multiple disease states, including myocardial infraction, stroke, diabetes, and metabolic syndrome. Broadly, levels of high sensitivity C reactive protein (hsCRP) < 1, 1 to 3, and >3 mg/L correspond to lower, moderate, and higher risks of future vascular events...Novel screening algorithms that incorporate not only inflammation, but also family history of disease can greatly improve risk detection.” Paul Ridker, MD, Director, Center for Cardiovascular Disease Prevention, Brigham & Women’s Hospital.

“Since bone loss is also common in other diseases associated with inflammatory processes such as rheumatoid arthritis, this raises the possibility that osteoporosis can be considered an inflammation-related disease.” George R. Mundy, MD, Director, Vanderbilt Center of Bone Biology.

**Time
Magazine
April 23, 2004**



“Recent experimental data provide evidence of a direct link between obesity and subclinical inflammation and support the concept that the metabolic syndrome and type 2 diabetes are, at least in part, inflammatory conditions.” Aruna D. Pradhan, MD, MPH, MSc, Harvard Medical School

“Chronic inflammation promotes carcinogenesis by inducing gene mutations, inhibiting apoptosis, and stimulating angiogenesis and cell proliferation. Inflammation also induces epigenetic alterations that are associated with cancer development. Dietary components, and human genetic variation that affects nutrient utilization, can directly modify inflammatory processes and/or suppress genomic alterations that are the

molecular antecedents of cancer.” Patrick J. Stover, PhD, Professor of Nutritional Sciences, Cornell University

“Ultra low-grade inflammatory states can have profound effects on morbidity and manifest an increased risk of mortality.” Bruce Bistrian, MD, MPH, PhD, Chief, Clinical Nutritional, Beth Israel Deaconess Medical Center

“...a chronic low grade systemic inflammatory status we propose to call inflammaging, having a major role in age-associated frailty, morbidity and mortality. The consequences of inflammation are far reaching, and affect all organs and systems. Indeed the most important age-associated pathologies (atherosclerosis and cardiovascular diseases, metabolic syndrome and diabetes type 2, neurodegeneration and Alzheimer’s dementia, major depression, cancer) share an inflammatory pathogenesis. A systematic search for chronic infections, and the set up of safe procedures to eradicate them, would likely have a strong, beneficial impact on health status and functional capability, and also on overall survival and lifespan in the elderly.” Claudio Franceschi, MD, Coordinator of the European Union (EU) Integrated Project “GEHA” (Genetics of Healthy Aging).

“We are pioneers. That’s the spirit we should have.” (Referring to the Conference Faculty) Philip R. Reilly, MD, JD, Chairman of the Board Emeritus, Interleukin Genetics.

“Inflammation is a central component of many common diseases such as heart disease, asthma, rheumatoid arthritis, ulcerative colitis and psoriasis. We are beginning to understand some of the important gene variations underlying susceptibility to, and/or severity of many common diseases where there is an inflammatory component.” Gordon Duff, MD, PhD, BM, BCh, FRCP, Fmed Sci, Director, Division of Genomic Medicine, University of Sheffield, UK

“Cholesterol-lowering and antioxidant interventions in mothers during pregnancy reduced postnatal atherogenesis, demonstrating that brief and safe interventions during pregnancy may yield long-term cardiovascular benefits to offspring.” Wulf Palinski, MD, Professor of Medicine, University of California at San Diego.

“Our current knowledge of the human genetic variation and the available technology has led to the situation where it may be possible to identify sub-groups within populations, and which genetic factors provide them with increased benefit or increased risk from a particular nutrient at a certain intake. This has been proclaimed as an approach that ultimately could lead to “**personalized nutrition**” where advice on nutrient intake is tailored to specific genetic factors. Jose Ordovas, PhD, Senior Scientist and Director of the Nutrition and Genomics Laboratory, Jean Mayer USDA Human Nutrition Research Center on Aging, Tufts University.

“Behavior and inflammation can be mutually reinforcing in either a positive or negative direction, with inflammation as a major mechanism of how well people age. Both behavioral and pharmacological interventions aimed at improving physical conditioning and weight are likely to emerge in the next decade and modulate the impact of our sedentary lifestyle on the quality and duration of old age.” Ronnen Roubenoff, MD, MHS, Senior Director, Molecular Medicine, Millennium Pharmaceuticals.

“**Preemptive Nutrition** strives to optimize health and offset the risk and/or progression of disease through an integrated understanding of genetic predisposition, nutrient-gene interaction, and appropriately timed nutritional pharmacology. Omega-3 fatty acids are emerging as particularly important (for cardio-inflammatory conditions). Notably, more than simply offsetting a nutritional insufficiency, but of promoting a health benefit.” Peter J. Gillies, PhD, FAHA, Director, Human Health Services, Dupont Nutrition and Health

“If you don’t understand Haplotypes, genetic SNP data doesn’t help you much” Ken Kornman, DDS, PhD, President, Chief Scientific Officer, Interleukin Genetics, Inc.

“Several of the most prevalent and severe age-related diseases, notably atherosclerosis and Alzheimer’s disease, exhibit a strong inflammatory component.” Aubrey de Grey, PhD, Biomedical Gerontologist, Department of Genetics University of Cambridge, UK and Editor-in-Chief, Journal of Rejuvenation Research

“The sequencing of the human genome and growing understanding of its function are providing powerful new research tools for identifying variants that contribute to complex diseases and traits.” Teri Manolio, MD, PhD, Senior Advisor to the Director for Population Genomics, National Institutes of Health (NIH)

“In an effort to improve risk prediction, multiple studies have demonstrated that elevations in markers for inflammation and thrombosis, such as hsCRP, homocysteine,predict cardiovascular risk.” Michelle Albert, MD, MPH, FACC, Division of Cardiovascular and Preventive Medicine, Brigham and Women’s Hospital, Harvard Medical School.

“Alzheimer’s Disease (AD) begins about 10 years before clinical symptoms. Patients with AD lose their most human qualities – reasoning, abstraction, language, and memory.” Dennis J. Selkoe, MD, Professor of Neurologic Diseases, Harvard Medical School.

“A survey asked Americans if they did all four of these best recognized good health practices: no smoking, proper weight, eat 5 or more servings of fruits and vegetables daily, and 30 minutes of exercise 5 times a week. Only 3% did all four!! From a clinical perspective we are still far away from helping specific patients. Concierge Medicine is what doctors think of personal health, i.e.: I don’t do that! - - must deliver chronic care not just acute care. People need health coaches and they must

pay for it.” Robert F. Kushner, MD, Academic Medical Director, Wellness Institute, Northwestern Memorial Hospital.

3. Final Discussion: How to Make Extension of Wellness a Reality

“We live in a glorious information age yet we are still obese, smoke, don’t eat right and don’t exercise. It’s very hard for a physician to teach wellness.” Donnica Moore, MD, Women’s Health Expert, Physician Educator, Media Commentator.

Dr. Ridker pointed out a typical political problem - - Harvard-affiliated Brigham and Women’s Hospital has a patent on the hsCRP test. People don’t want someone else’s invention, they want their own. Everyone should be screened for hsCRP. He felt that even a 12 year old taking a soccer physical should also take a blood test for hsCRP.

The final panel, led by Dr. Donnica, held a spirited discussion of the problems. For example, who owns turf of prevention?! Its not the doctors! Our society can’t even get the sugar drinks out of the public schools- - where are the grown ups? The reward money is acute care, not preventive. How sway medical practioners? Its overwhelming to push through the system, why not the patients do it themselves? Some of the Corporations that self insure have good employee preventive health programs. We have to realize it’s a free market. Research must get to recommendations. Need simpler advice to the patient. We can change some behavior with information from data bases. Learn to communicate better with the public. Do we need societal interventions like seat belts and no smoking? i.e.: take vitamin supplements, take physicals and gene test, walk more, etc. Preemptive Nutrigenomics?

Several doctors in the audience stood up to tell the faculty that they had heard the most number of new ideas ever at a conference.

4. The best screening and solution available today

The Interleukin general nutrition gene test (6 genes) and especially their patented heart health (inflammation) gene test stood out as the best and most practical new tools available today. More importantly they are combined into a free Health Risk Assessment and Recommendation Report using a Nutralite Health Institute (NHI) algorithm. Finally, for those at increased risk there are specific essential and suggested supplements defined for each person as well as lifestyle recommendations. This Personalized Health program by NHI showed that part of the future that many envisioned was here today.

Of particular interest to this conference was the phenomenal results obtained by the Nutralite IL1 heart health botanical - - an 80% reduction in expression of the inflammation - - in a double blind placebo controlled study with 2,329 healthy adults.

More than 250 plant extracts were first screened to find the final product combination of 4 ingredients that was used for this proof-of-concept trial. Here is the complete abstract and biography of this faculty presenter:

Kenneth S. Kornman, DDS, PhD

President, Chief Scientific Officer

Interleukin Genetics, Inc.

Waltham, MA

Biography

Dr. Kornman is Chief Scientific Officer of Interleukin Genetics, a Boston-based biotechnology company. He has published over 100 peer-reviewed papers and four textbooks. Dr. Kornman did his dental training at Emory University and has a PhD in microbiology/immunology from the University of Michigan. He retains an academic appointment at Harvard, is Editor-in-Chief of the *Journal of Periodontology*, and is on the editorial board of several journals. His research since 1993 has focused on the influence of inflammation genetics on common diseases.

Abstract: ***Botanicals Reduce Inflammation in Healthy Individuals Genetically Predisposed to Over-Express Inflammatory Mediators: A Nutrigenetics Proof-of-Principle***

Inflammatory mechanisms appear to be in the critical path for the pathogenesis of multiple common diseases, and reduction of inflammatory mediators reduces risk for disease complications, such as secondary cardiovascular events. Management of lifestyle factors, including diet, physical activity, and body weight reduces a broad range of inflammatory mediators and has long been known to improve health and prevent disease. One disease prevention opportunity is to develop inflammation lowering botanical products targeted to healthy individuals who have a genetic predisposition to over-expression of inflammation and to certain diseases of aging.

This proof-of-concept trial was designed to determine whether individuals with the genetic variations that predispose to an early MI through over-expression of interleukin (IL-1) could be modulated by means of botanical extracts that were selected to inhibit inflammatory mediators. In this study we used cell-based models to screen nutrient extracts that either inhibited IL-1B or inhibited CRP. Healthy adults with elevated C-reactive protein were selected and were stratified as either positive or negative for the IL-1 pro-inflammatory gene variations. Subjects in each genotype stratum were then randomized to three mixtures of candidate botanical extracts or placebo.

This report will present the process for selection of the botanical extracts and the biomarker results of one of the active botanical extracts compared to placebo in both IL-1 genotype positive and negative subjects. This study is one of the first practical demonstrations of nutrigenetics in which subjects were prospectively selected based on genetic variations. In this proof-of-concept study, individuals who were genetically predisposed to over-express inflammatory mediators were more responsive to the active botanical.



NUTRILITE® IL1 Heart Health Nutrigenomic Dietary

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Supports heart health for those who are IL1 positive

This exclusive NUTRILITE® IL1 Heart Health Supplement is the first and only natural supplement formulated to specifically address the phytonutrient needs of individuals who have an over expression of the IL1 gene, to help them maintain a healthy heart and cardiovascular system.* Now available in bottles. This product contains gluten.

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The results are in!

Final IL1 Heart Health Clinical Study replaces interim report.

In good news for you and your NUTRILITE® business, the IL1 Heart Health Clinical Study results are final.

This IL Heart Health Clinical Study reflects the experiences of 64 subjects over a 12-week period, whereas preliminary results were based on 56 participants over an eight-week period.

The final report reaches the same conclusions as the preliminary one and adds more detail about methodology and results.

Use this [clinical](#) (PDF) with any customer or member of your downline who wants scientific proof before they're ready to make a purchasing decision.