Conference *Program*

16th Annual World Congress on

Anti-Aging Medicine & Regenerative Biomedical Technologies

December 11-14, 2008 | *Venetian Hotel and Casino, Las Vegas, NV*

ACCREDITATION STATEMENT

Up to 40 Hours AMA PRA Category 1 credit

The Medical Educator Consortium

ACCREDITATION: The Medical Educator Consortium, is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

CREDIT HOURS: The Medical Educator Consortium, designates this educational activity for a maximum of 40 hours of category 1 credit towards the AMA Physician's Recognition award.

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Consult the Show Guide appearing in this issue of Anti-Aging Medical News for information about the Las Vegas Anti-Aging Exposition. The Las Vegas Anti-Aging Exposition is produced and managed by Medical Conferences International Inc.

Refer to the Program Schedule, available on-site at the 16th Annual World Congress on Anti-Aging Medicine's Winter 2008 Session, for the latest available Schedule and related Program information.

SCIENTIFIC CONFERENCE CO-SPONSORED BY:

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COMMERCIAL WORKSHOPS & SPECIAL EVENTS
Las Vegas '08

All Special Events take place at the Venetian Hotel & Casino, Las Vegas, NV
Consult the Program Schedule available on-site for the room locations.

THURSDAY, DECEMBER 11, 2008

AESTHETIC MEDICINE: BODY SHAPING WITH VELASHAPE AND LIPOLITE
Presented by SYNERON
Time: 6:30 pm – 7:30 pm Speaker: ***John Shieh, MD***

AESTHETIC MEDICINE: FRACTIONAL CO_2 RESURFACING WITH DEEP FX/ACTIVE FX
Presented by LUMENIS
Time: 7:30 pm – 8:00 pm Speaker: ***TBA***

FRIDAY, DECEMBER 12, 2008

AESTHETIC MEDICINE: ANTI-AGING MAINTENANCE & TATTOO REMOVAL
Presented by HOYA CONBIO
Time: 6:00 pm – 7:00 pm Speakers: ***Will Kirby, MD from E! Entertainment's Dr. 90210 and Bruce Saal, MD***

AESTHETIC MEDICINE: FACIAL INJECTABLES DEMONSTRATION: "THE LIQUID FACELIFT"
Time: 7:00 pm – 7:30 pm Speaker: ***Sharon McQuillan, MD***

AESTHETIC MEDICINE: DOT THERAPY: FRACTIONAL LASER SKIN RESURFACING WITH SMARTXIDE DOT CO_2 LASER
Presented by ECLIPSE MEDICAL
Time: 7:30 pm – 8:30 pm Speaker: ***Robert Troell, MD***

LIVE BRAIN MAPPING
Presented by PATH MEDICAL
Time: 6:00 pm – 9:00 pm Speaker: ***Eric Braverman, MD***

AN EFFECTIVE STRATEGY IN CELLULAR METABOLISM AND DEGENERATIVE DISEASES: THE EXPERTS SPEAK – A SYMPOSIUM ON THE INTEGRATIVE USE OF SPECIFIC NUTRITIONAL SUPPLEMENTS
Presented by AMARC – POLY MVA
Time: 6:00 pm – 9:00 pm Speakers: ***Drs. James Forsythe, Frank Antonawich, Marcus Cobb, Albert Sanchez, Sr. & Albert Sanchez, Jr.***

PLACENTAL GROWTH FACTOR IN ANTI-AGING THERAPY
Presented by JAPAN BIOPRODUCTS
Time: 6:00 pm - 9:00 pm Speaker: ***Sawako Hibino, MD, PhD***

THE USE OF ANTI-AGING DIAGNOSTIC TOOLS, INTERPRETATION & CLINICAL INTERVENTIONS
Presented by AGE DIAGNOSTIC LABORATORIES
Time: 6:00 pm – 9:00 pm Speaker: ***Bill Anton, PhD***

AN ALTERNATIVE TO GROWTH HORMONE: SECRETROPINRX, A SECRETAGOGUE THAT WORKS!
Presented by UNIVERSITY COMPOUNDING PHARMACY
Time: 6:00 pm - 7:00 pm Speaker: ***Mark L. Gordon, MD***

THE GREATEST HIDDEN SECRET IN ANTI-AGING HEALTHCARE TODAY-VASTU
Presented by PREMIER RESEARCH GROUP
Time: 6:00 pm - 9:00 pm Speaker: ***Robert Marshall, PhD, CCN, DACBN***

COMBATING TODAY'S DEADLIEST DISEASES BY SUPERCHARGING IMMUNITY
Presented by AMERICAN BIOSCIENCES
Time: 6:00 pm - 9:00 pm Speaker: ***Barry Ritz, PhD***

SATURDAY, DECEMBER 13, 2008

AESTHETIC MEDICINE: INTRODUCING PEARL FRACTIONAL WITH YSGG – A NEW ABLATIVE WAVELENGTH COMBINING WITH BENEFITS OF CO_2 AND ERBIUM
Presented by CUTERA
Time: 6:00 pm – 7:00 pm Speaker: ***Leonardo Rasi, MD***

AESTHETIC MEDICINE: LASER LIPOLYSIS
Time: 7:00 pm – 7:30 pm Speaker: ***Barry Citron, MD***

BEYOND BIOIDENTICAL HORMONE THERAPY
Presented by ARASYS PERFECTOR ION MAGNUM
Time: 6:00 pm – 9:00 pm Speaker: ***Xanya Sofra-Weiss, PhD***

HOW TO OPEN A TURN KEY WEIGHT MANAGEMENT PROGRAM
Presented by UNIVERSITY COMPOUNDING PHARMACY
Time: 6:00 pm – 7:00 pm Speakers: ***Kim Ruby, CN and Warren Peters, MD***

THE ULTIMATE "SUCCESSFUL-PRACTICE-MARKETING" WORKSHOP
Time: 6:00 pm – 9:00 pm Speaker: ***Craig Ure, MB***

GBTRX PRESENTS A TOTAL SOLUTION
Presented by KRS GLOBAL
Time: 6:00 pm – 9:00 pm Speakers: ***Dr. Riccardo Roscetti***

SUNDAY, DECEMBER 14, 2008

FORMAL PINNING CEREMONY FOR FELLOWSHIP GRADUATES
Time: 9:00 am – 9:45 am Room: ***Hall C***

DRAWING FOR THE TOYOTA SCION TC AUTOMOBILE
Time: 1:00 pm Room: ***Hall B***

BOARD CERTIFICATION

Establish Your Expertise as a Certified Anti-Aging Health Professional

CERTIFICATION FROM THE AMERICAN BOARD OF ANTI-AGING MEDICINE /REGENERATIVE MEDICINE (ABAARM)

ABAARM was established in 1997 as a professional physician (MD, DO, MBBS) certification and review board which offers physicians recognition in the form of a specialty based examination in anti-aging medicine.

ABAARM/ABAAHP (Part I- Written) Review Course
December 11, 2008 from 6:30 pm – 9:00 pm
Venetian Hotel & Casino, Las Vegas, NV USA (check with Board Registrar or A4M Service Area for exact room assignment)

ABAARM Written Examination
December 14, 2008 from 1:00 pm – 4:00 pm
Venetian Hotel & Casino, Las Vegas, NV USA (check with Board Registrar or A4M Service Area for exact room assignment)

ABAARM (Part II- Oral) Review Course
December 10, 2008 from 6:30 pm – 9:00 pm
Venetian Hotel & Casino, Las Vegas, NV USA (check with Board Registrar or A4M Service Area for exact room assignment)

ABAARM Oral Examination
December 11-13, 2008
Venetian Hotel & Casino, Las Vegas, NV USA (check with Board Registrar or A4M Service Area for exact room assignment and to confirm examination time)

CERTIFICATION FROM THE AMERICAN BOARD OF ANTI-AGING HEALTH PRACTITIONERS (ABAAHP)

ABAAHP, established in 1999, provides recognition and specialty representation for healthcare professionals, including Doctors of Chiropractic (DC), Doctors of Dentistry (DDS), Naturopathic Doctors (ND), Podiatric Doctors (DPM), Registered Pharmacists (RPh), academic researchers (PhD), nurses (RN), physician assistants (PA), and nurse practitioners (NP), Acupuncturists.

ABAARM/ABAAHP (Written) Review Course
December 11, 2008 from 6:30 pm – 9:00 pm
Venetian Hotel & Casino, Las Vegas, NV USA (check with Board Registrar or A4M Service Area for exact room assignment)

ABAAHP Written Examination
December 14, 2008 from 1:00 pm – 4:00 pm
Venetian Hotel & Casino, Las Vegas, NV USA (check with Board Registrar or A4M Service Area for exact room assignment)

SPORTS MEDICINE CERTIFICATE PROGRAM

For Health Professionals Involved in the Sports Medicine Specialty

The American College of Anti-Aging Sports Medicine Professionals (ACASP) Certificate and Workshop Programs are a specialized Certificate program in conjunction with medical organizations to allow health professionals to learn the latest in preventative medicine, integrative medicine, anti-aging medicine, and longevity medicine and integrate this into their sports medicine practice. The first such certificate will be in ***Anti-Aging Sports Medicine & Rehabilitation.***

Workshop Program: Takes place in conjunction with the 16th Annual International Congress on Anti-Aging Medicine and Regenerative Biomedical Technologies' Winter 2008 Session:

- December 10-11, 2008 8:00 am – 6:00 pm

Venetian Hotel & Casino, Las Vegas, NV USA (check with Board Registrar or A4M Service Area for exact room assignment)

Certificate Examination of The American College of Anti-Aging Sports Medicine Professionals (ACASP):

- December 14, 2008 from 1:00 pm – 4:00 pm

Venetian Hotel & Casino, Las Vegas, NV USA (check with Board Registrar or A4M Service Area for exact room assignment).

To learn more about Board Certification/Certificate Programs of the American Academy of Anti-Aging Medicine, visit www.worldhealth.net, click on "Certifications." For inquiries, please call Board Registrar at 773-528-1000 [ABAARM] or (773) 528-4333 [ACASP], or send email to exam@worldhealth.net.

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NU SKIN SCIENTISTS IDENTIFY ADDITIONAL FREE RADICAL GENERATOR

Activity of Enzyme on Skin Cells Correlates with Age

KYOTO, Japan—May 14, 2008—New research funded by Nu Skin Enterprises on internal causes of aging has identified a previously unknown source of superoxide free radicals. Free radicals from external triggers, such as sun exposure and cigarette smoke, have long been known to damage skin cells and components of the skin's extracellular matrix, including collagen and elastin.

Scientists from Nu Skin Enterprises and Purdue University report their novel research findings on age-related NADH oxidase (arNOX) this week in Kyoto, Japan, at International Investigative Dermatology 2008 (IID2008), a major scientific venue for the latest information on skin biology. The scientists present compelling evidence that arNOX, an enzyme associated with cell membranes, is present and active on skin cells. Significantly, arNOX activity may begin to increase sometime during the mid-thirties and has been shown to increase during the "aging" years.

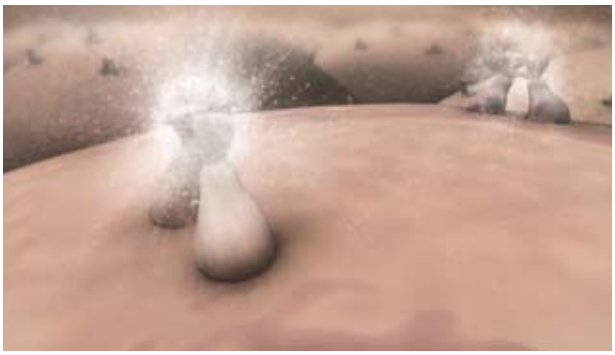
"Identifying skin-associated arNOX and its increasing activity with age is a breakthrough discovery in understanding skin aging," said Zoe Diana Draelos, M.D., primary investigator with Dermatology Consulting Services, member of the Nu Skin Scientific Advisory Board, and one of the study authors. "Currently, most dermatological research focuses on correcting skin damage after it occurs. Identifying an internal source of free radicals in skin, and advancing an understanding of how and why they are generated, adds to our ability to address fundamental mechanisms that may combine with external sources that may lead to accelerated skin aging."

"Evidence of arNOX in the skin provides further insights into potentially revolutionary therapies for skin care, particularly because its activity correlates with the ages when people begin to see their skin lose its elasticity and firmness, and notice more discoloration and lines and wrinkles," remarked Helen Knaggs, Ph.D., vice president of Nu Skin global research and development. "If we can develop innovative ways to inhibit arNOX activity and prevent the production of free radicals in the first place, then we can address both sides of the equation—correcting free radical damage from external sources, while at the same time preventing free radical production from internal sources."

Authors of the study are Dale Kern, senior scientist for Nu Skin Enterprises; Dr. Draelos; Dorothy Morré, Ph.D., professor of foods and nutrition, Purdue University; and D. James Morré, Ph.D., Dow distinguished professor of medicinal chemistry, Purdue University. Nu Skin has funded ENOX research by the Morrés since 1999.

About arNOX

The arNOX enzyme is one in a class of newly identified ECTO-NOX (external NADH oxidase or ENOX) proteins that are located on external cell membranes. ECTO-NOX proteins become increasingly active to generate additional metabolic energy as cell mitochondria age and produce less energy. arNOX has been identified in all cells tested, including serum and saliva and now the dermis and epidermis. Its unique property is that it generates superoxide at the cell surface that is capable of damaging adjacent cells, lipoproteins, and other structural components of the skin's extracellular matrix, such as collagen and elastin. Other NOX categories include tumor-NOX, viral-NOX, and constitutive, or normal, NOX.



About IID2008

IID 2008 is the fifth joint meeting of the Society for Investigative Dermatology (SID), the European Society for Dermatological Research (ESDR), and the Japanese Society for Investigative Dermatology (JSID). IID2008 is hosted in Kyoto, Japan, May 14–17, and is the only major venue this year for the presentation of the latest information on skin biology and skin diseases. The conference program is widely based on any of the basic and clinical dermatological fields.

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Nu Skin Enterprises, Inc. is a global direct selling company operating in 47 markets throughout Asia, the Americas, and Europe. The company markets premium-quality personal care products under the Nu Skin® brand, science-based nutritional supplements under the Pharmanex® brand, and technology-based products and services under the Big Planet® brand. Nu Skin Enterprises is traded on the New York Stock Exchange under the symbol "NUS." More information is available at http://www.nuskinenterprises.com.

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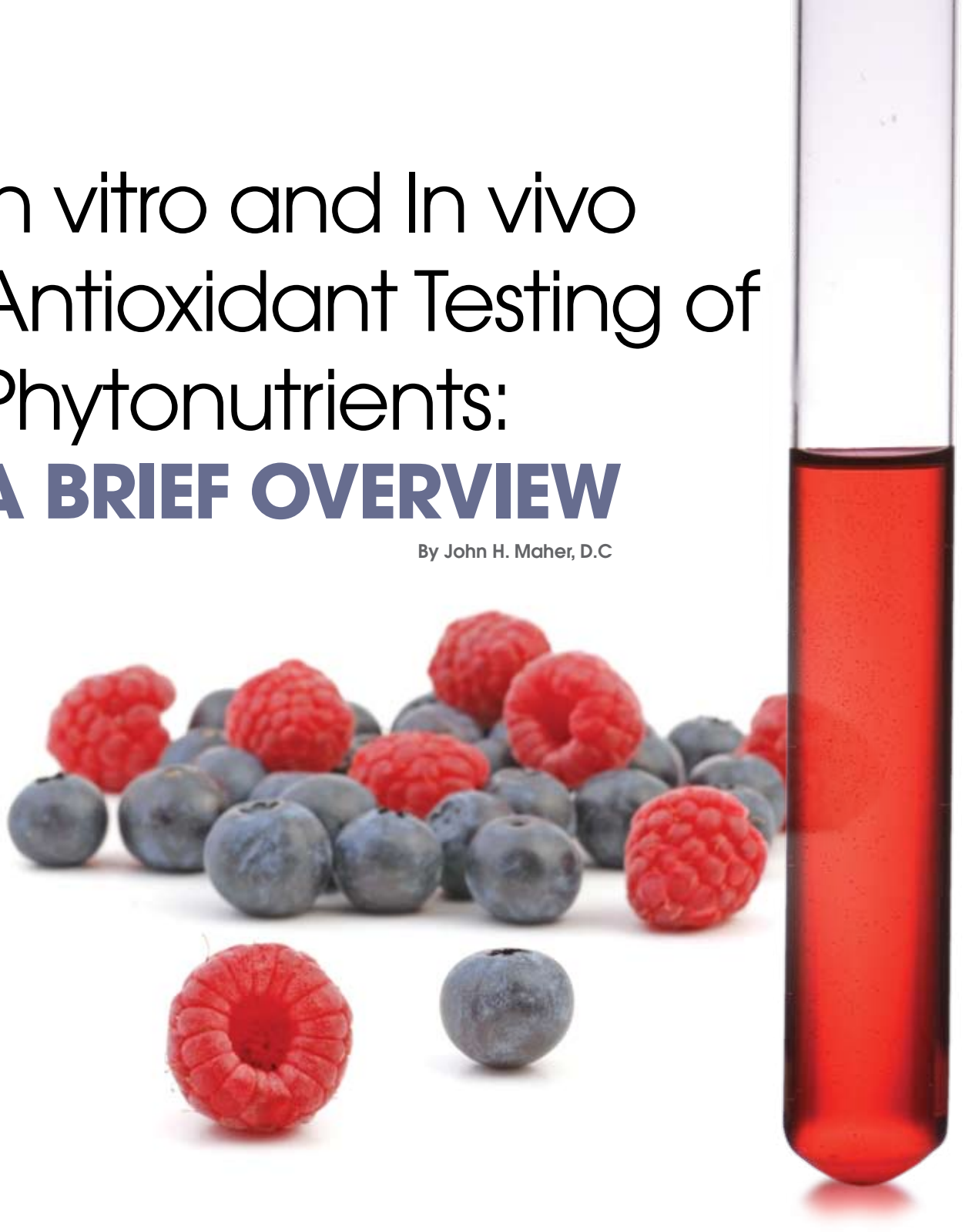
In vitro and In vivo Antioxidant Testing of Phytonutrients: A BRIEF OVERVIEW

By John H. Maher, D.C



IN VITRO TESTING

In vitro antioxidant testing has become a popular way to help verify the antioxidant power of many phytonutrient pills, drinks and powder.[1] *In vitro* is Latin for "within the glass" and refers to the technique of performing a given experiment in a controlled environment outside of a living organism; for example in a test tube. By far the most commonly performed and promoted *in vitro* antioxidant test is called an Oxygen Radical Absorbance Test, usually referred to as the ORAC score.[2]

However, ORAC testing only tests the ability of a product to quench just one of the four major oxidants, called reactive oxygen species (ROS), namely the peroxyl radical.[3] Today, antioxidant testing is readily available for the peroxyl radical (ROO), the hydroxyl radical (HO), and the peroxynitrite (ONOO-) and singlet oxygen radicals ($^1O_2$).[4,5] These may tested for by tests known as ORAC, HORAC, NORAC and Electro-Ox™ testing.

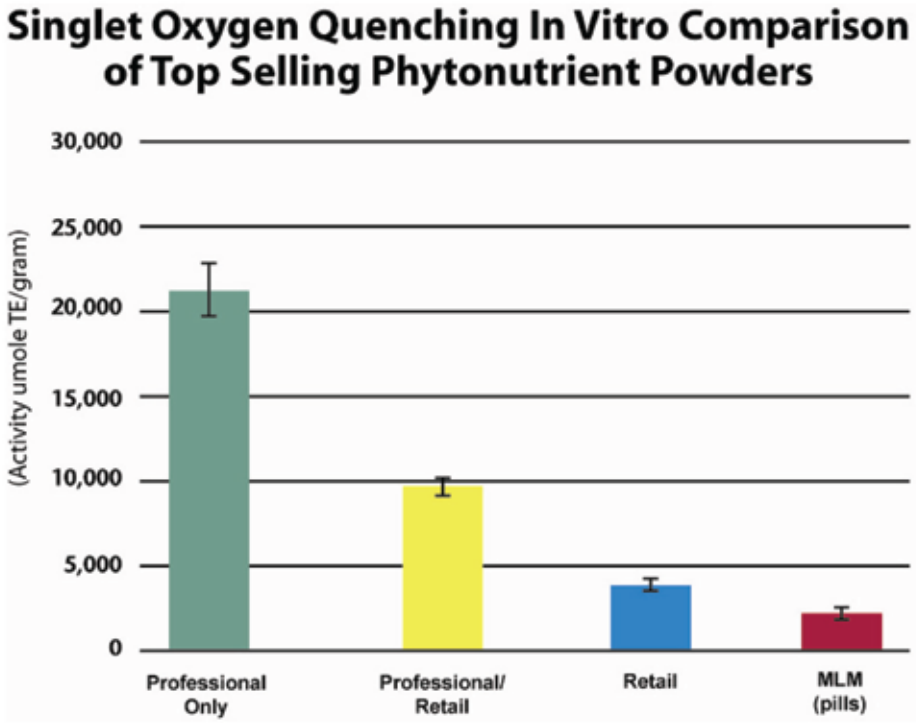
Quite naturally, different antioxidants

have differing abilities to quench specific reactive oxygen species. The exogenous, non enzymatic antioxidants we consume include vitamins A & C; minerals like selenium and zinc; phytonutrients like the terpenes group which includes carotenoids, limonoids and chromanols (CoQ10, tocopherols, tocotrienols), organic sulfurs group (sulfhydryls and thioethers), polyphenols (flavonoids, OPCs and catechins) and the amine group (chlorophyll); and amino acids like N-acetyl cysteine.[6,7,8]

The points here are multifold. First, when the broadest spectrum of antioxidant supplementation is desired a wide variety of sources needs to be considered as over and above mega doses of single or a few nutrients. Secondly, if considering the antioxidant power of a phytonutrient product, the broadest spectrum of antioxidant activity will come from a product containing fruits and vegetables of all the colors, not just "greens" or "reds" or a single fruit, no matter how "super". Finally, testing with just one antioxidant test like ORAC, which mainly tests for quenching of the peroxyl radical, though valuable, does not of itself measure total *in vitro* antioxidant capacity.

Below is an example taken from an antioxidant report including ORAC, NORAC and HORAC on a green fruit and vegetable superfood powder.

To figure the ORAC per serving, if the phytonutrient superfood greens came in a 12 gram serving, the total ORAC score would be 8,256 umoleTE/g. Let the "buyer beware" as some companies provide ORAC per bottle or liter which may easily confuse the unfamiliar, perhaps intentionally so, with inflated scores. It should be noted that there is a 15% +/- Standard Deviation in ORAC scores. Also, it is best if the test reports state the lot number, date and if the sample was from an unopened sealed container to guard against very out dated reports and "spiked" samples. If promoted to health professionals these studies should be posted online or provided upon request.



Antioxidant tests for singlet oxygen are harder to garner. But here is a comparative report from Columbia Phytotechnology using its Electro-Ox™ test showing a wide difference in singlet oxygen quenching potential of various leading fruit and vegetable phytonutrient powder products.

Nonetheless, allow me to state clearly that the above assays are performed *in vitro*, "in the test tube", and therefore do not determine the *bioavailability* within the body. The high scores only indicate that the tested sample possesses a high potency of antioxidant activity chemically.

LIPOPHILIC AND HYDROPHILIC ANTIOXIDANTS

Antioxidants can be more or less soluble in fats or water. This is important as it relates to the *in vivo* antioxidant potential of certain products. *In vivo* is Latin for "within the living" and means that which takes place inside an organism. In antioxidant testing, *in vivo* refers to experimentation done in or on the living tissue of a whole, living organism as opposed to a partial or dead one or a controlled environment. Animal testing and clinical trials are forms of *in vivo* research.

This distinction is important. For example, in a person with no gall bladder, there may be poor absorption of fat soluble (lipophilic) nutrients. So even though the *in vitro* tests showed high lipophillic antioxidant potential, the *in vivo* results may be disappointing due to poor absorption of fats. Using similar

>ORAC$_{hydro}$ (umoleTE/g) 559 **> ORAC$_{lipo}$ (umoleTE/g) 129** **> ORAC$_{total}$ (umoleTE/g) 688**

>HORAC (umoleCAE/g) 39 **> NORAC (umoleTE/g) 63**

The unit notation umoleTE/g means that micromole of trolox equivalents per gram. (Trolox is a vitamin E derivative.) The unit notation umoleCAE/g means that micromole of caffeic acid equivalents per gram. (Caffeic acid, $C_9H_8O_4$, a naturally occurring phenolic compound which is found in many fruits, vegetables and herbs, including coffee, is a powerful natural antioxidant.) Note that the ORAC scores are divided into water soluble and fat soluble as well as providing a total score.

reasoning, phytonutrient products containing fat soluble phytonutrients, like the carotenoids for example, will not likely be very bioavailable if consumed with no fat or minimal fat liquids / meals. This is because fat is needed to stimulate even normal gall bladder function which results in the formation of micelles and liposomes. It is these sub-microscopic micelles and liposomes that make fats "soluble" in the intestinal lumen and bioavailable through passive diffusion into the enterocytes of the small intestine.

The easiest solution to this problem is to prepackage the lipophillic ingredients in liposomes. Liposomes (from the Greek meaning literally "fat bodies") are naturally nanosized "fat bodies" usually made of phosphatidyl choline (PC) from egg or soy lecithin.

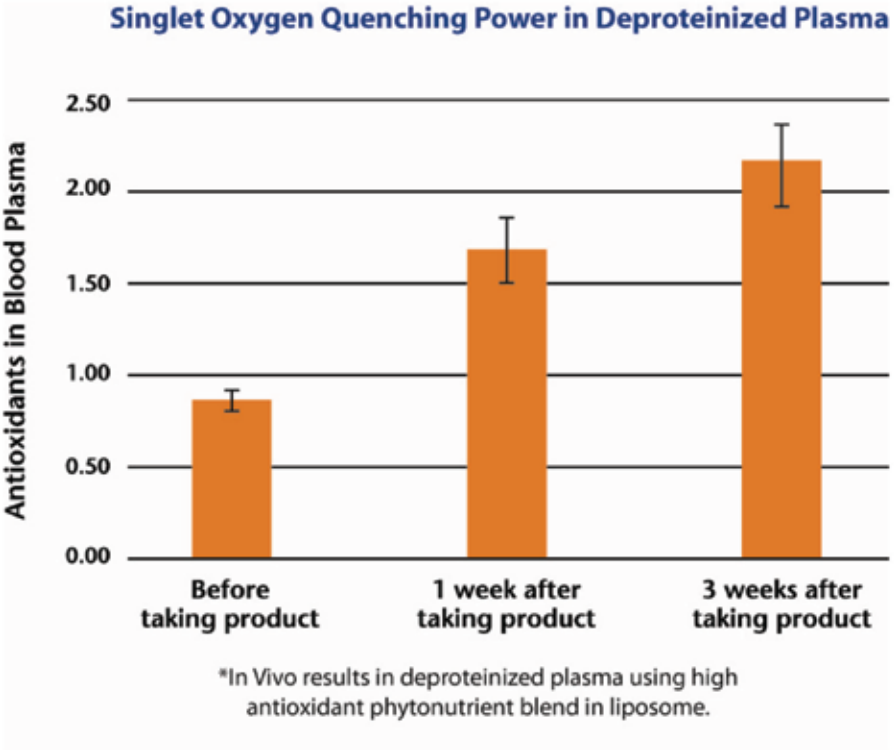
In any case, once a product has been demonstrated to have antioxidant power in the canister or bottle, the next step is that antioxidant power can also be demonstrated in the body.

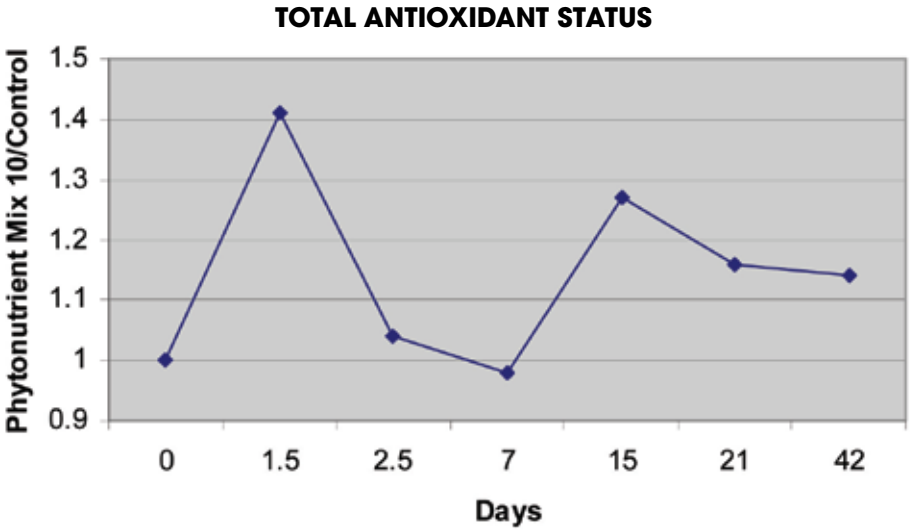
IN VIVO TESTING

In vivo testing can be done by plasma, urine, saliva, tissue biopsy and even in living tissue.

An example of the latter is Raman spectroscopy for biological measurements of carotenoid antioxidant nutrients. This non-invasive light beam technology was originally designed for measurements of lutein and zeaxanthin, two xanthophyll carotenoids in the retina that help protect the eyes against macular degeneration. It was found that this measurement tool was also useful to measure xanthophyll carotenoid status by projecting the light beam into the palm instead of the retina. Later the ability to measure lycopene, a carotene carotenoid, was developed.[9]

Plasma studies to measure the ability to quench free radicals, though more invasive, give a larger measure of actual total radical activity, not merely amount of a few antioxidants stored in the skin, significant as these might be. Deproteinized plasma is usually used, as the major antioxidant power of plasma comes from *endogenous* antioxidant products, such as uric acid, albumin and glutathione. Removing these endogenous substances allows a more sensitive indication of the efficacy of *exogenous* supplements to enhance free radical quenching power. In the chart the *in vivo* ability to quench the specific ROS singlet oxygen is measured. In the below example, plasma is drawn, deproteinized and then tube tested for its ability to quench singlet oxygen. The phytonutrient blend consumed consisted of a test capsule of one gram of high antioxidant blueberry, green tea, grape seed, cranberry, raspberry, tart cherry, broccoli, tomato, carrot, spinach, kale, Brussels sprout, bilberry, elderberry, pomegranate and blackberry extracts. It provided an *in vivo* ORAC of over 10,000 umole/gm. This extract was placed in PC based liposomes (average size 120 -150 nanometers) to enhance





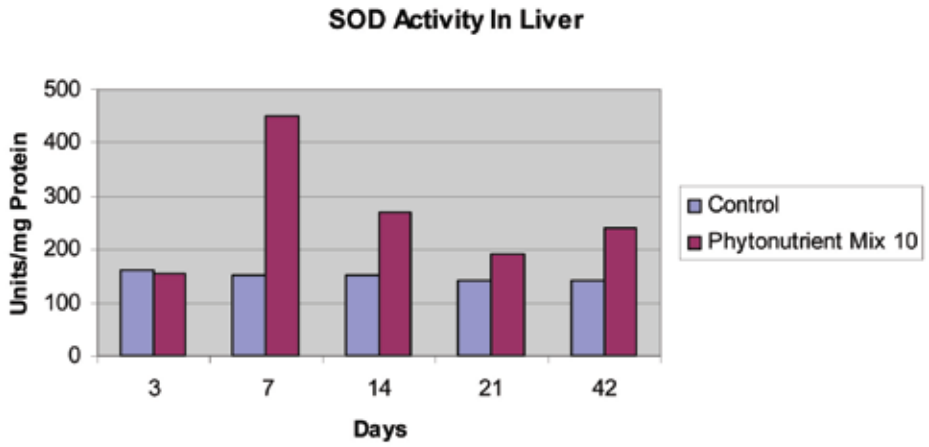
Time course of total antioxidant capacity (TAC) status during intake of a phytonutrient greens, fruit and vegetable drink powder mix.[12]

bioavailability. The chart shows an *in vivo* increase of singlet oxygen quenching ability in deproteinized plasma of well over 100%.[10]

Total antioxidant plasma of the blood can also be measured. Please recall that there will be less than 100% increase because of the predominance of endogenous antioxidants in whole plasma. Indeed in whole plasma an immediate increase of 30% and an average of 12% of total antioxidant capacity is considered newsworthy.[11] In the animal study below the phytonutrient provided consisted of micro algae (spirulina, chlorella, Dunaliella salina), barley grass juice powder, multiple fruit and vegetable powders of all the colors, lecithin, Acerola cherry, fermented cabbage, milk thistle, plant enzymes, quinoa sprout, lemon peel, oat beta glucan, soluble rice bran, concentrated extracts of green and white tea, resveratrol, lutein, zeaxanthin, lycopene, cinnamon, raspberry, iso quercetin-rutin 50/50 and aloe vera. Selected nutrients were nano-encapsulated in a patented liposomal delivery system. Note an immediate increase of over 40% and a long term stable increase of approximately 13%.

Tissue biopsies can be used as well. In the following chart we see the increase of superoxide dismutase (SOD) in the liver of test animals following the ingestion of the same phytonutrient supplement described above. It is of interest that the *in vivo* antioxidant activity of a nutrient inside a test tube may have little relation to its *in vitro* activity as such. Sometimes the greatest contribution to *in vivo* antioxidant status is rather the enhancement of the production of endogenous antioxidant enzymes like catalase (CAT) glutathione peroxidase (GPX) and superoxide dismutase (SOD), as the chart shows.[13]

Superoxide dismutase (S.O.D.) consists of several metallo-enzymes that catalyze the formation of hydrogen peroxide and oxygen from superoxide radical and thus protects against superoxide induced free radical damage. SOD is notably increased at day 7. This activity remains increased for all 42 days. The process is very statistically significant.



Activity of superoxide dismutase in liver during Phytonutrient Mix intake. [14]

CONCLUSION:

Six years ago I helped introduce to the nutraceutical industry the use of *in vitro* ORAC testing to support claims of antioxidant power. Continued scientific progress behooves us doctors who recommend nutraceuticals and functional food powders and drinks to become familiar with advanced antioxidant testing, both *in vivo* and *in vitro*, and what the results mean. I hope that this brief article has been of some value in that regard. These tests do not measure antioxidant levels but oxidative stress itself. ◆

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JOHN H. MAHER, D.C., is co-founder of BioPharma Scientific and former co-owner of Doctors for Nutrition. Dr Maher, who practiced for 25 years, is past post-graduate faculty of NYCC Academy of Anti-Aging Medicine, a Diplomat of the College of Clinical Nutrition, a Fellow of the American Academy of Integrative Medicine, and the first non-MD to become board eligible in anti-aging medicine. He continues to teach at National and State Conventions and is published regularly in leading chiropractic publications.

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Practice *Highlights*

ERIC W. HONING, MD

As I write this, I can't believe that it has only been 2 years ago that I began this illuminating and exciting change in my professional life!

I was just going to do the 1st module since I was only interested in the bio-identical hormones (shows how naïve I was). However, after attending that module, I was convinced that I needed to be fellowship trained and board certified, in order to have the competetive edge in this growing and exciting field of medicine. Completing the fellowship and passing the boards has only been the foundation of the ongoing and continuous training that we must pursue in order to be of help to our patients. The fellowship is a very important biulding block and I could not imagine anyone practicing successfully without completing this. I am not saying that everything you need to know is taught to you but you have the knowledge and access to obtain all that you want. At first it seems so overwhelming and with time and review and repetition it becomes assimulated into your practice.

I now have a thriving practice with BodyLogicMD in Phoenix that I am so grateful and excited about!! I am expanding by adding another 1 or 2 fellowship trained physicians to keep up with the exploding demand of this cutting edge brand of medicine!! I wish all those the good fortune and blessings that I have aquired in the 2 short years I have been involved with the fellowship and the A4M!!

Take care!!

JENNIFER LANDA, MD, BOARD CERTIFIED OB/GYN, BOARD CERTIFIED ANTI-AGING

While I was practicing Ob/Gyn, I became interested in aesthetic medicine. Through my investigations I became familiar with the concept that I could help patients improve their appearance by treating them from the inside out. Then I went to my first A4M conference and I was hooked. I was very excited by the preventative approach that I saw in anti-aging medicine. I was also excited about the possibilities I saw for helping my patients with bio-identical hormones.

I started to attend conferences and learn as much as I could from them. It wasn't until I learned about the fellowship and started my modules that I was really able to solidfy my knowledge and put it into practice with my patients. Through the fellowship I learned about hormones for what I felt was the first time, although I was an Ob/Gyn. One of the best parts of anti-aging medicine is the fact that it is all evidence-based. The terrific fellowship instructors always provide references for statements they make regarding all of the different topics covered in the fellowship. A large amount of material is covered in a concise fashion. The fellowship helped bring together all the different facets of anti-aging and regenerative medicine in a way that was not possible before its' existence. I felt that the fellowship also prepared me very well for my written and oral board exams in anti-aging medicine and also for full time anti-aging practice. Almost two years ago I stopped practicing Ob/Gyn and opened BodyLogicMD Orlando, a practice where I only see patients for anti-aging medicine. The focus of my practice is bio-identical hormone replacement. My patients are having terrific results and I have a rewarding and fulfilling practice.

LANCE MAKI, MD FACOG

I am a board certified OB/GYN physician and still enjoy delivering babies, but now limit my time to that working as an OB/GYN Hospitalist. I now live in Florida, mainly because I love the ocean and surf almost every other day.

I first became part of A4M through Ron Rothenberg, MD, and a surfing buddy of mine. Ron's enthusiasm for A4M is infectious and I followed his sagacious advice to become involved in A4M and now have been a member for close to 10 years. He initially was my own physician, but through him and the fabulous fellowship courses and everything else offered by A4M, I am building my own anti-aging/regenerative medicine practice. The wealth of information offered by the Academy truly complements my background in taking care of women; and equally importantly, gives me the opportunity to take care of some of the husbands of my patients in a fully qualified way.

Without the core principles and wisdom provided me by the Fellowship, I would be ill equipped to take care of all of these people. The Fellowship has also helped me narrow my focus to the areas where I am most expert: Men and Women's Health and Fitness, and the whole gamut of restoring optimal health to aging couples. My wife is a women's health nurse practitioner and she also enjoys the fine conferences we attend together. She, along with our neuroscientist, have drawn excellent ideas from the A4M Conferences and we have developed one of the most state-of-the-art practices in our region for anti-aging medicine. I am now in the last phase of my training with the Fellowship, having passed my oral exams and completing the initial Fellowship. There was so much fabulous information, that I'm sure I'll revisit several of the modules again, and can't wait to hear what has been discoved since my first time through. Thanks everyone, especially Pam Smith, Steve Sinatra, Mark Houston, Jim LaValle, Eric Braverman, John LaPuma, and of course Ron Rothenberg.

Sincerely,

Lance Maki, MD FACOG

JAY E. MATTINGLY, MD

My first exposure to functional medicine dates from 1980, when introduced to Durk Pearson and Sandy Shaw's book, Life Extension – A complication of all the existing vitamin studies. I became a convert. A board-certified anesthesiologist practicing for over 25 years, and an Associate Professor at the University of Tennessee in Memphis, I've often lectured to residents, medical students, or anyone who would listen about the spectral variability in what drugs do to a particular person's physiology, demonstrated in dynamic fashion at arms length in the operating room. My resolute dictum: If you're paying attention, each patient will "tell" you exactly what he or she needs. Lo and behold Dr. Pam Smith, the Director of the A4M Fellowship, exhorts us to do the exact same thing in this resurrection of Hippocratic medicine aimed at insuring quality of life.

Besides lifestyle, nutrition, hormonal optimization, and supplementation, the ramifications of gut health, neurophysiology, polymorphism compensation, acid-alkaline balance, genomics, endothelial dysfunction and mitochondrial optimization have infected me with evangelical enthusiasm. A month ago I lectured here to eighty residents from all departments about the unintended consequences of traditional medicine (like CoQ10 depletion from statins and metformin), besides beseeching them to be open-minded to the "anti-aging" groundswell.

Affably spearheading the program, Dr. Smith infuses her considerable wisdom and clinical expertise. She's assembled an impressive array of cutting-edge practioners blanketing every aspect. The Fellowship Coordinator, Linda Zeooli, expertly keeps the cogs greased and wheels whizzing while the Director of Education, Heidi Pepper, took my hand and has walked me through every step of the way, addressing every logistic question.

Climb aboard. Don't miss this train. Its tracks blaze the trail to the medicine of tomorrow.

PHYLLIS C. OKEREKE MD, FRCS, FRCOPHTH, ABAARM

I have been an active member of the A4M since May 2006. I did my Oral Boards in April 2007, and have been an Oral Boards Examiner since July 2007. I recommend the complete meeting videos. for self study. I will complete my Fellowship training in December 2008. This is comprehensive and l strongly recommend it if you are preparing for the Oral Boards and for patient management. My education from the American Academy of Anti-Aging and Regenerative Medicine has completely changed my life and my practice of medicine. I am an Ophthalmologist with Ophthalmic Plastic and Vitreoretinal training and have an Aesthetic and Comprehensive Ophthalmology practice. I saw many patient with features of aging , deflated faces with wrinkle, folds, grooves, dry thin skin with age spots, and large pores. Most of them wanted a quick fix. Yes, I gave them botox injections, volumelift with fat or other fillers, nipped and tucked, photorejuvinated and chemical peeled. Did I mention blepheroplasties? Now when I see vertical lip lines, I think of hormonal imbalance before lip augmentation and when I see a puffy lids , I think of thyriod hormone deficiency before blepheroplasty. At the risk of running foul of my Ophthalmology collegues I have started thinking of anti-glycation instead of phacoemulsification. My patients are happier, heathier, and the best part is, they bring their families and friends in. I am grateful to the efficient and helpful staff of the A4M.

PATRICIA L. PIERCE, DO

I feel very blessed to have been involved in a fellowship that is a combination of challenges in addition to being exciting, motivating and refreshing and has medically rejuvenated my desire to learn again.

What is so transformative about this fellowship is the seamless way it integrates the many facets of all the systems of the body. This fellowship has rejuvenated my desire to confront intensive studying again. It is paving the way for one form of medicine which will serve a larger healing and spiritual function on the planet by providing innovative solutions to the countless problems that jeopardize our future.

Dr. Pamela Smith's leadership of discipline, integrity and compassion is a tremendous value that inspires us all. All of the conference speakers exemplified the "cream of the crop" of motivators and lecturers. They and their brilliant staff brought to us the most up-to-date information possible-(sometimes research only weeks old).

What else can i say? I love this fellowship and find this work very inspiring.

DANIEL B. WATTS, MD

Eight years ago as an Ob-Gyn, I was concerned about the influence that managed care would have on the financial success of my practice and my ability to provide quality care to my patients. At the same time I noticed my patients, friends and family experiencing the wrath of aging and asking me "What are we going to do about it?"

Hoping to find a solution to both problems, I attended my first A4M conference in Las Vegas. My eyes were immediately opened to a new and exciting integrated method of practicing medicine as medical and science leaders from around the world were teaching new, modern methods and attitudes about health and longevity. This resonated as not only the solution for a new direction for my practice but the gateway to better serving those I cared about.

To gain knowledge and confidence in practicing age management medicine, I enrolled in the Fellowship program and Board Certification offered by the A4M. The courses were challenging, inspiring and fun. Through excellent support and education I was able to reinvent my practice and begin offering a new array of services to my patients.

I now direct The Renewal Point, a concierge style medical clinic and spa in Sarasota, Florida where, gladly, we no longer deal with the managed care mess. But most rewarding, I am seeing my friends, family and patients look and feel younger through natural hormone balancing, detoxification, genomics, nutrition, metabolism control and med spa services.

Many thanks to A4M, Dr. Pam Smith, and Heidi Pepper for your encouragement and outstanding support!

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For submission guidelines please visit our website at http://www.worldhealth.net /pdf/ SpeakerSubmissionGuidelines.pdf. Please send all of the required materials to program@worldhealth.net. Please specify the name of the event you are applying for.

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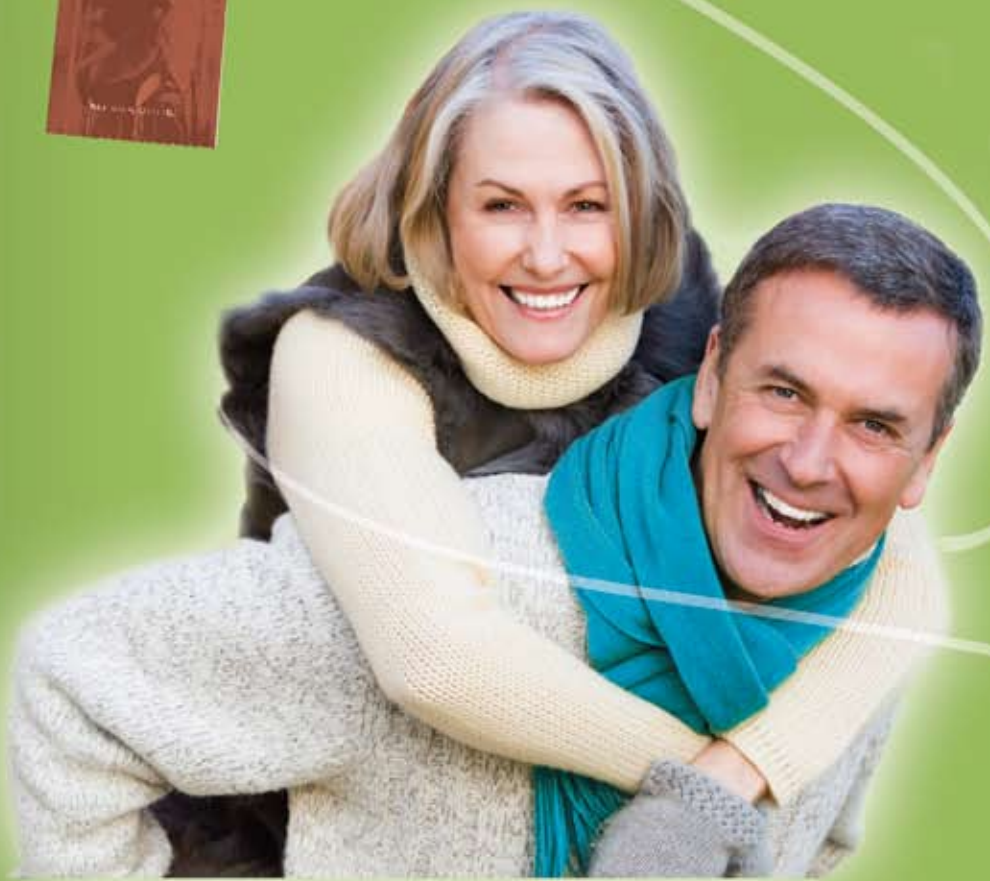

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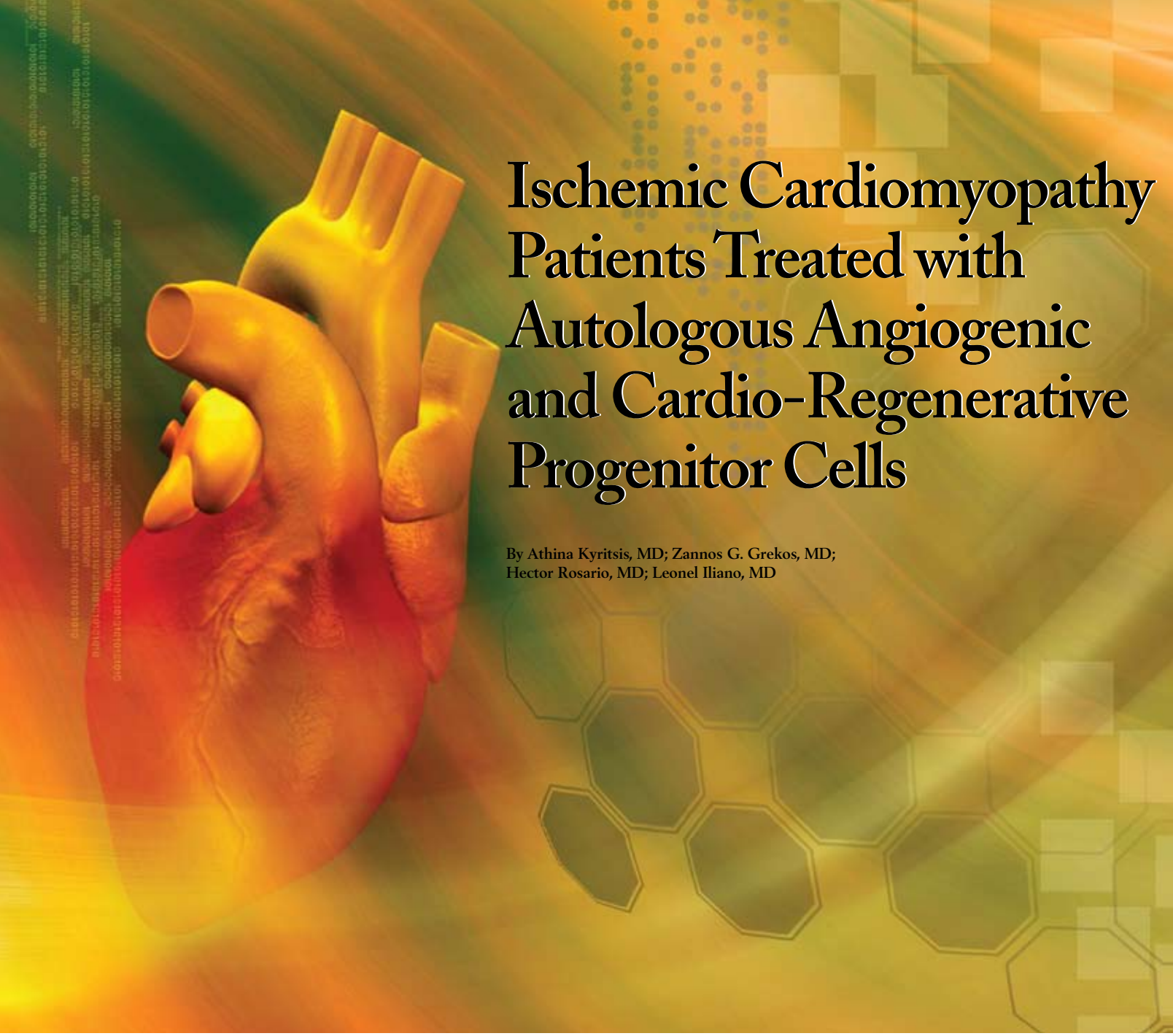

Ischemic Cardiomyopathy Patients Treated with Autologous Angiogenic and Cardio-Regenerative Progenitor Cells

By Athina Kyritsis, MD; Zannos G. Grekos, MD; Hector Rosario, MD; Leonel Iliano, MD

Objective; The goal of this study is to investigate the feasibility, safety, and clinical outcome of patients with Ischemic Cardiomyopathy treated with Autologous Angiogenic and Cardio-Regenerative Progenitor cells (ACP's) in a prospective fashion.

Background; In numerous human trials there is evidence of improvement in the ejection fractions of Cardiomyopathy patients treated with ACP's. Animal experiments, not only show improvement in cardiac function, but also engraftment and differentiation of ACP's into cardiomyocytes as well as neo-vascularization in infarcted myocardium. In our clinical experience the process has shown to be safe as well as effective.

Methods; We conducted a prospective, non-randomized study evaluating the effects of ACPs (*ex vivo* expanded and differentiated peripheral blood stem cells) implanted in sixteen patients with chronic ischemic cardiomyopathy (Ejection fractions < 45%) with congestive heart failure symptoms of at least NYHA class II. ACP's where implanted via either intra-myocardial injection or intra-coronary infusion. Patients where optimized medically prior to ACP's therapy with standard medical therapy for CHF as well as revascularization and upgraded to Bi-ventricular defibrillators when indicated. Ejection fractions where recorded at baseline then at 3 and 6 months using MUGA at rest as well as at stress (dobutamine protocol). The primary end points were changes in rest and stress ejection fractions.

Results; We found treated patients exhibiting a significant increase in cardiac ejection fraction from baseline. The increases in ejection fraction were

21 points (75% increase) at rest and 28.5 points (80% increase) at stress.

Conclusion; This study exemplifies that ACP's can improve the ejection fraction in patients with severely reduced cardiac function with benefits sustained to six months. These patients will continue to be followed in a similar fashion to determine long term outcomes. Other secondary outcomes will also be followed including cardiac events, hospitalizations, mortality, functional class, cardiac dimensions.

INTRODUCTION

Despite significant advances in the new therapeutic modalities and prevention, cardiac disorders are very prevalent all over the world. The magnitude of the problem will increase considerably in the future due to increasing life expectancy and the prevalence of diabetes. In spite of considerable advances in medical therapy and improvements in revascularization procedures for coronary artery disease, a substantial proportion of patients who suffer from angina pectoris and heart failure are not responsive to maximal medical and surgical treatment modalities. Importantly *Cardiovascular Disease* is at the top of the list for medical expenditures in the United States of America. With the majority of dollars spent on hospitalizations for congestive heart failure. Consequently, effective alternative therapies for these patients would have far reaching benefits.

Regenocyte's therapeutic strategy collects blood samples from patients, isolates peripheral blood mononuclear cells, and grows these cells in conditions that will cause a significant increase of the number of progenitor cells as well as partially differentiate these cells into a population specifically targeted at cardiac regeneration.

Following this culturing stage, the ACPs are harvested, packaged, and transported to the treatment center to be injected into the coronary vessels and myocardium of the patients. The final cell product is known as Regenocytes.

Regenocyte therapy treats patients suffering from angina pectoris or cardiomyopathy, not responsive to maximal drug treatment or not willing or without option of undergoing coronary artery bypass graft (CABG) surgery or PCI. The use of ACPs promotes the formation of neo-vascularization and viable myocardial tissue.

SCIENTIFIC BACKGROUND CELLULAR BIOLOGY

Angiogenic Cell Precursors (ACPs) or Endothelial progenitor cells (ECPs) possess the ability to differentiate into endothelium, the layer of cells involved in both the forming of blood vessels (neovascularization) and the lining of their lumen (endothelialization). These functions of the ACPs enable the development of new therapies that aim to use these cells for the treatment of severe vascular disorders.

The first evidence indicating the presence of ACPs in the adult circulation was obtained when mononuclear blood cells from healthy human volunteers were shown to acquire an endothelial cell–like phenotype *in vitro* and to incorporate into capillaries *in vivo* [11]. These putative ACPs were characterized via expression of CD34 and vascular endothelial growth factor receptor-2 (VEGFR-2), two antigens shared by embryonic endothelial progenitors, and hematopoietic stem cells. In addition to CD34, early hematopoietic progenitor cells express CD133 (AC133), which is not expressed after differentiation. Currently, the widely accepted definition of ACPs in circulation is, for practical purposes, $CD34^+/VEGFR\text{-}2^+$ or $CD133^+/VEGFR\text{-}2^+$ cells.

The fact that ACPs can take part in the formation of new blood vessels was first observed by Bhattacharya and colleagues who showed the formation of capillary-like structures from hematopoietic stem cells or *ex-vivo* expanded ACPs [12,13]. The contribution of bone marrow-derived cells, mainly ACPs, to neovascularization after ischemic injury *in vivo*, was shown in experiments using labeled populations of stem cells to reconstitute lethally irradiated mice. The cells or their progeny were shown to migrate into ischemic cardiac muscle and blood vessels, differentiate to cardiomyocytes and endothelial cells, and contribute to the formation of functional tissue [14]. Other work, involving a mouse retinopathy model, demonstrated the important role that the recruitment of endothelial precursors to sites of ischemic injury plays in neovascularization [15].

The majority of ACPs reside in the bone marrow in close association with Hematopoietic Stem Cells (HSCs) and bone marrow stromal cells that provide the microenvironment for hematopoiesis. ACPs have been shown to mobilize (i.e. migrate in increased numbers from the bone marrow into circulation) in patients with vascular trauma or Acute Myocardial Infarction (AMI) [16, 17], or in response to Administration of VEGF via gene transfer [18, 19].

The sources of Autologous Angiogenic Cell Precursors that can be used for treatment varies and include bone marrow, peripheral blood and different mesenchymal organs. The use of cells from peripheral blood has the advantage of being more uniform easier to characterize and control and that their collection is easier (without anesthesia). The disadvantages are the relative small number of Angiogenic Cell Precursors in peripheral blood which requires a relatively large volume of blood and the time consuming process of augmentation.

The use of Angiogenic Cell Precursors promotes the formation of neo-vascularization as well as new myocardial cells in the failing heart and as a consequence attenuates congestive failure.

CLINICAL TRIALS OF STEM CELL THERAPY FOR CARDIAC DISEASE

Considerable work has been carried out to elucidate the mechanisms behind ACP's mobilization, localization and function. Progress has also been achieved in establishing therapeutic protocols for treating a variety of conditions, such as peripheral limb ischemia, acute myocardial ischemia and infarction by using progenitor cells.

The last few years have seen significant progress being achieved by clinical trials using therapeutic protocols for treating a variety of vascular conditions, such as peripheral limb ischemia, acute myocardial ischemia and infarction by using stem and progenitor cells. Clinical trials have been performed to test the safety and potential efficacy of several types of cells [8-24].

The trials showed considerable potential at alleviating these conditions with no serious adverse effects directly related to the cells administered. These studies demonstrated the potential safety of the administration of other peripheral blood–derived cells in humans suffering from myocardial and vascular diseases and the potential for enhancing myocardial function with associated improvement in symptoms as manifested in the patients' physical condition and in objective cardiac function tests.

Methods of cell administration were intracoronary injection while performance of angiography, intramuscular injection at CABG operation or intramuscular injection.

The parameters of heart performance were improvements in left ventricular ejection fraction (LVEF), improvement in cardiac perfusion and in angina score. The results of these trials are in general promising after follow-up of 4-16 months. Adverse effects were minimal and were not related to administration of the ACPs.

However, most studies have the disadvantage of having been small series, conducted as open label trials and only some of them included a control group. When considering the benefit of stem cell treatment there is wide agreement that these treatments are safe and carry minimal risk to patients, as supported by "*The Consensus Of The Task Force Of The European Society Of Cardiology Concerning The Clinical Investigation Of The Use Of Autologous Adult Stem Cells For Repair Of The Heart*" [30]

METHODS AND PROCEDURES

Sixteen patients were selected based on the following guidelines.

INCLUSION CRITERIA:

1. Patients with ischemic cardiomyopathy on maximal medical therapy.
2. Ejection Fraction less than 45%.
3. Age 18 to 80 years
4. Male or non-pregnant, non-lactating female
5. Informed consent obtained and consent form signed

EXCLUSION CRITERIA:

1. Patients who received blood transfusions during the previous 4 weeks (to exclude the potential of non-autologous ACPs in the harvested blood).
2. Inability to communicate (that may interfere with the clinical evaluation of the patient)
3. After heart transplantation
4. Renal failure
5. Hepatic failure
6. Anemia (lower than 10mg/dl.hemoglobin for female and lower than 11 mg/dl for male)
7. Abnormal coagulation tests [platelets, PT (INR), PTT]
8. Malignancy
9. Concurrent chronic or acute infectious disease
10. Severe concurrent medical disease (e.g., septicemia, HIV-1,2/HBV/HCV infections, systemic lupus erythematosus)
11. Chronic immunomodulating or cytotoxic drug treatment
12. Patients who have rectal temperature above 38.40C for 2 consecutive days
13. Patient unlikely to be available for follow-up

Evaluation Parameters:

The following tests were performed at baseline and at 3 and 6 month follow-up visits to measure subjective and objective parameters of the treatment:

1. Physical exam
2. Blood pressure, heart rate and ECG
3. Blood tests
4. Hematology: RBC; Hemoglobin; Hematocrit; WBC; Neutrophils; Lymphocytes; Monocytes; Platelet count.
5. Blood Chemistry: Glucose; Blood urea nitrogen (BUN); Serum creatinine; Serum chloride; Serum potassium; Serum sodium; HgA, C, C-Peptide, CRP, P-BNP
6. CCS (Canadian Cardiovascular Society) grading for Angina
7. NYHA (New York Heart Association) grading for congestive heart failure
8. Assessment of cardiovascular drug types and doses
9. Echocardiography
10. Dobutamine Stress MUGA
11. Bruce exercise nuclear perfusion test
12. Number of hospitalizations
13. Mortality
14. Cardiovascular events

CELL PRODUCT

The Final Cell Product (Regenocytes) consisted of Autologous Angiogenic Cells Precursors isolated from the patient's blood and then expanded and partially differentiated *ex vivo* under sterile conditions. The cells were divided into 3 syringes suspended in 15 ml sterile cell culture medium. The product was sterile and pyrogen-free.

BIOLOGICAL ACTIVITY ANALYSES

Acceptable biological parameters as assessed by microscopy and flow cytometry that were in accordance with the following specifications:

1. Cell viability of greater than 75%
2. Appropriate Morphology – spindle-shaped, large cells forming long thread-like structures.
3. Minimum subpopulations of cells staining positive for the CD34 and CD 31 markers (assessed by flow cytometry).

The final cell product was also tested for safety based on the following:

1. Sterility
2. Gram stain
3. Bacterial Endotoxin
4. Mycoplasma contamination
5. Bacterial culture

TREATMENT ADMINISTRATION OF REGENOCYTES

Patients were transferred to the cardiac catheterization laboratory approximately one hour before the anticipated arrival of the cells. Coronary angiography was performed to define the artery or arteries planned to be used for the cell injection. The administration was performed intracoronary utilizing an over-the-wire balloon catheter and following a specific delivery protocol or by intra-myocardial injection.

SAFETY

There were no adverse events associated with the ACP's. No cardiac events occurred. There was one severe adverse event. One patient suffered a CVA during one of the cardiac catheterizations and was therefore excluded from the group.

RESULTS

We found treated patients exhibiting a significant increase in ejection fraction from baseline that was sustained to the six month time period. Baseline average resting EF (measured by MUGA) was 28% (range; 14% to 42%), with an average stress (dobutamine) EF at 36% (range; 19% to 52%). At the three month mark resting EF had increased to 40% and the stress EF was at 50% and at six months the resting EF had reached 49% (range; 38% to 56%), and the stress EF was at 64.5% (range; 56% to 67%).

DISCUSSION

Heart failure is estimated to affect 4 to 5 million Americans, with 550,000 new cases reported annually.[31] In the past 3 decades, both the incidence and prevalence of heart failure have increased. [31-33] Factors that have contributed to this increase are the aging US population and improved survival rates in patients with cardiovascular disease due to advancements in diagnostic techniques and medical and surgical therapies.[32-36] Heart failure is a chronic, progressive disease that is characterized by frequent hospital admissions and ultimately high mortality rates. Because of its high medical resource consumption, heart failure is the most costly cardiovascular illness in the United States.[37]

Advances in the treatment of heart failure and early intervention to prevent decompensation may delay disease progression and improve survival. However the natural course of the disease is progressive deterioration. Despite increasing success in comprehensive treatment by conventional medical therapy refractory congestive heart failure continues to pose a difficult medical and economic problem.

The results of this study suggest that intracoronary and intramyocardial injection of autologous, peripheral blood-derived cell population enriched in Angiogenic Cell Precursors (ACPs) in patients with congestive heart failure is a safe and effective alternative treatment for patients who have exhausted other therapeutic options. In this study, such treatment resulted in significant increases in ejection fraction with a concomitant decrease in_symptoms.

These results reflect the high potential of this cellular treatment as a novel adjunctive therapy for congestive heart failure. ◆

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