

PROGRAM



Building your Health Portfolio

3rd ANNUAL CONFERENCE 2019

Can Chronic Diseases Be Reversed?

February 1st-2nd 2019

Mission Inn Resort and Club
(Los Reyes Ballroom)
10400 County Road 48
Howey-In-the-Hills, FL-34737
352-324-3101

SCHEDULE: Friday February 1st, 2019

7:30-8:00 am	Registration
8:00-8:30 am	Session 1 Introductory Remarks Shalesh Kaushal MD, PhD
8:30-9:15am	Mark Houston MD
9:20-10:05am	Nathan Bryan PhD
10:05-10:25am	REFRESHMENT BREAK VENDORS VIEWING
10:30-11:15am	Robert Miller ND
11:20-12:05pm	Robert Rountree MD
12:10-1:15pm	Lunch Guest Surprise Speaker
1:15-1:30 pm	Session 2 Shalesh Kaushal MD, PhD
1:30-2:15 pm	Aristo Vojdani PhD
2:20-3:05 pm	Dave Hagedorn PhD
3:10-3:30 pm	REFRESHMENT BREAK VENDOR VIEWING
3:35-4:20 pm	Stephen Sinatra MD
4:30-5:30pm	VENDOR VIEWING MEET THE SPEAKERS

SCHEDULE: Saturday February 2nd, 2019

8:00-8:30 am	Session 3 Introductory Remarks Shalesh Kaushal MD, PhD
8:30-9:15 am	Alessio Fasano MD
9:20-10:05am	Navdeep Chandel PhD
10:05-10:25am	REFRESHMENT BREAK VENDOR VIEWING
10:30-11:15am	David Sabatini MD PhD
11:20-12:05pm	Nathan Price PhD
12:10-1:15pm	LUNCH
1:15-1:30 pm	Session 4 Shalesh Kaushal MD, PhD
1:30-2:15 pm	Keith March MD PhD
2:15-2:30pm	REFRESHMENT BREAK VENDOR VIEWING
2:30-3:15pm	Andrew Dillin PhD
3:20-4:05pm	Sebastian Brandhorst PhD
4:05-4:20pm	Closing Remarks Shalesh Kaushal MD PhD
4:20-5:30pm	VENDOR VIEWING MEET THE SPEAKERS



Welcome to our 3rd Annual Conference, *Can Chronic Diseases Be Reversed?* Our goal is to bring together talented clinicians, scientists and educators to share their basic research and clinical insights into chronic diseases. The major ones include hypertension, coronary artery disease, Alzheimer's disease, macular degeneration, glaucoma, autoimmune disorders, diabetes, obesity, pain disorders and cancer.

It is apparent there is significant high-quality research that has elucidated and provided biochemical, molecular biological, genomic and clinical evidence into the pathogenesis of these diseases.

Our sincere desire is to create the awareness, both among the public and the biomedical community about this important work and these remarkable people. In doing so, we can make a real, meaningful impact into chronic disorders that are rising exponentially throughout the world.

Shalesh Kaushal

Shalesh Kaushal MD, PhD
Program Organizer and Director



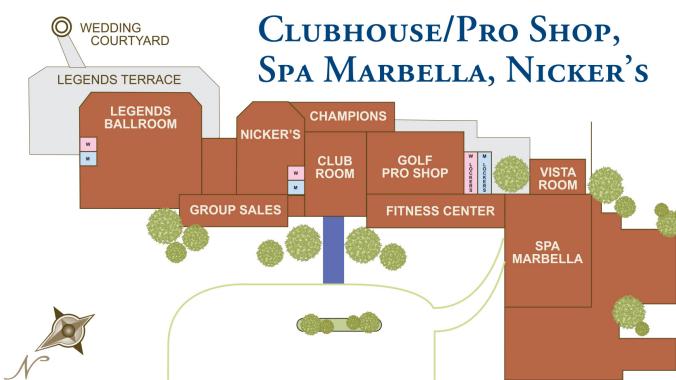
GENERAL INFORMATION



Restaurants & Lounges
 La Hacienda
 El Conquistador
 La Margarita Lounge
 La Chiquita Pool Bar

Banquets & Conference
 El Nuevo Mundo
 Serra
 Coronado
 Cortes
 Desoto
 Los Reyes Foyer

Meeting Rooms
 El Moro
 La Paloma
 El Gitano
 La Fontana
 La Arcada
 El Presidente Board Room
■ San Miguel-fourth floor





BUFFET LUNCHES

Friday

12:10-1:15pm

Lunch Sponsored by



Buffet Lunch Served at Los Reyes Foyer

Saturday

12:10-1:15pm

Lunch Sponsored by



Buffet Lunch Served at Los Reyes Foyer

Refreshments will be served throughout the day



2019 DISTINGUISHED SPEAKERS

Shalesh Kaushal MD, PhD

Moderator for the Meeting

Comprehensive Retina Consultants

Dr Kaushal is a nationally and internationally known clinician/scientist, both as a retina specialist and a biochemist. He is deeply committed to patient care and also developing novel diagnostic testing, genomic analysis and therapies for retinal disorders. Indeed, he was the first person in the world to treat patients with four of the new retinal treatments.

Sebastian Brandhorst PhD

Research Assistant Professor

USC Leonard Davis School of Gerontology

Dr. Brandhorst is one of the world leaders in understanding the basic biology and clinical utility of fasting and the fasting mimetic diet. This work is providing new methods that directly impact patient health and the management of a host of chronic diseases.

Nathan S. Bryan PhD

Adjunct Research Assistant Research Professor

Baylor College of Medicine

As a biochemist, Dr. Bryant has significant contributions to understanding the role of the gas nitric oxide (NO) in vascular health and disease. He has also developed nutraceutical products that improve vascular health which is important in hypertension and diabetes.

Navdeep Chandel PhD

Professor, Feinberg School of Medicine Northwestern University

David W Cugell Professor of Medicine & Cell Biology

Dr. Chandel has brought insight and understanding to mitochondrial structure and function. Specifically, he is internationally known for our understanding of how low levels of oxidative stress (i.e. the generation of reactive oxygen species (ROS)) are quite important intracellular signaling molecules that help maintain homeostasis.



2019 DISTINGUISHED SPEAKERS

Andrew Dillin PhD

Professor, UC Berkeley/HHMI

Paul F. Glenn Center for Aging Research

Thomas and Stacey Siebel Distinguished Chair in Stem Cell Research

Dr. Dillin is an internationally known molecular biologist and biochemist who is a Howard Hughes Institute Investigator. His laboratory works on the genetic and molecular mechanisms that regulate aging and aging-related diseases. The Dillin lab is particularly interested in understanding why an organism loses control over the quality and integrity of its proteins as it ages and how such protein misfolding stress is communicated within tissues and organs.

Alessio Fasano MD

Professor, Harvard Medical School, Boston, MA

European Biomedical Research Institute Salerno (EBRIS) Salerno - Italy

Dr. Fasano work has provided fundamental insight into the biochemical understanding of how gluten leads to intestinal permeability, "leaky gut". His work has provided the connection between leaky gut and many chronic diseases like diabetes and a whole host of autoimmune disorders.

Dave Hagedorn PhD

CEO, NeuroRead

Dr. Hagedorn is a neuroscientist/neuroclinician who has developed instrumentation and software to perform functional brain mapping. This is useful to assess chronic neurological disorders like Alzheimer's disease, PTSD, pain syndromes and traumatic brain injury.

Mark Houston MD

Associate Clinical Professor of Medicine, Vanderbilt School of Medicine

Director, Hypertension Institute

Director, Thomas Medical Group

Saint Thomas Hospital

Dr. Houston is a well-known for being an outstanding clinician, book author, educator researcher. His work has brought novel methods and protocols for the treatment of hypertension and coronary artery disease.



2019 DISTINGUISHED SPEAKERS

Keith March MD, PhD

Professor, University of Florida

Director Center for Regenerative Medicine

Vice Chief Cardiology Research Professor of Medicine

Dr. March has been studying the role of various stem cells, especially those found in adipose tissue, for the treatment of various chronic disorders. Most recently, his work has concentrated on characterizing the compounds produced by stem cells. This material will be used for mitigating chronic diseases.

Robert Miller ND

Founder of NeutriGenetic Research Institute

Dr. Miller has been a leader and pioneer in clinical genomics and personalized medicine. Besides founding multiple companies, he sees patients and does research in understanding chronic disorders like Lyme disease.

Nathan Price PhD

Co-Director, Institute of Systems Biology

Dr. Price has made significant contributions in the understanding, integration, organization and clinical utilization of the vast data that is collected in the care of patients. He is leader in this field of medical systems biology.

Robert Rountree MD

Institute of Functional Medicine

Dr. Rountree is an internationally respected clinician and educator. His clinical acumen and deep insight into the appropriate identification and management of patients with chronic diseases has enlightened physicians and helped many patients.

David Sabatini MD, PhD

Professor, Whitehead Institute

MIT/HHMI

ACS Research Professor

Dr. Sabatini is an internationally-recognized basic scientist and a Howard Hughes Medical Institute investigator. His fundamental work has elucidated the cellular biochemistry of mTOR pathway that has profound implications for the management of chronic diseases and a variety of cancers.



2019 DISTINGUISHED SPEAKERS

Stephen Sinatra MD, FAAC, FACN, CNS
Assistant Clinical Professor of Medicine
University of Connecticut School of Medicine

Dr. Sinatra is a nationally and internationally known cardiologist who has made fundamental contributions to the field of metabolic cardiology. His work has led to clinical trials that validated nutraceutical approaches to manage cardiovascular diseases. Further, he has extensively studied the role of cholesterol and statins in heart disease.

Aristo Vojdani PhD, MSC, CLS
Adjunct Clinical Professor, Department of Preventive Medicine
Loma Linda University
Cyrex Labs

Immunosciences Lab
Dr. Vojdani has developed, validated and clinically implemented immune and allergy testing. He is a world recognized and deeply respected by his both his peers and patients that have benefited from his groundbreaking testing and insight into a whole host of chronic diseases.



2019 SUPPORT RECOGNITION

We are grateful for the generous support of the following Sponsors.

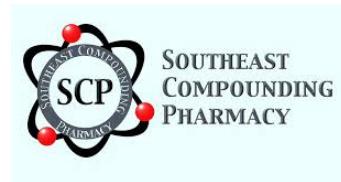




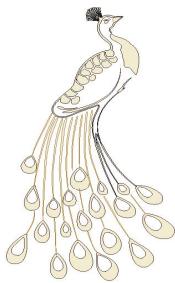
2019 SUPPORT RECOGNITION



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A_{1c}Manager™

2019 EXHIBITS/VENDORS



COMPREHENSIVE RETINA CONSULTANTS (CRC)

Comprehensive Retina Consultants is one of the premier retina practices in the country. It is recognized both nationally and internationally for their compassionate, cutting edge care of patients. CRC also has contributed to a deeper understanding of the biochemistry and genetics of retinal diseases and coupled that with many novel clinical studies and trials. Additionally, the patients who come to CRC have the unique opportunity for achieving better overall health and maximizing their vision. This coalescence of cutting edge retinal care, evaluation of metabolism and nutrition, along with genomics evaluation and novel non-invasive diagnostics makes CRC the first of its kind in the country.

SABINSA

Sabinsa's mission is to provide alternative and complementary natural products for human nutrition and well-being. For over 30 years, Sabinsa has brought to market more than 120 standardized botanical extracts, and privately funded clinical studies in conjunction with prestigious institutions in support of these products. With more than 110 full-time scientists conducting ongoing research in India and the United States, Sabinsa and parent company Sami Labs continue to develop, patent and manufacture phytonutrients for the world market, with ingredients that are both Halal and Kosher. <https://www.sabinsa.com/>

FUNCTIONAL GENOMIC ANALYSIS

Your DNA may hold the secrets about your health. Discover your unique genome and how this knowledge may help you take a preventative approach to your overall wellness. People are turning to genetic testing to help find answers to their health and need an experienced practitioner to help them. Functional Genomic Analysis™ online software is the tool practitioners need to easily guide you through this seemingly complex process. Functional Genomic Analysis™ creates nutritional protocols, based upon one's unique DNA, lab work, and presenting symptoms, giving you the ability to Assess, Analyze and Design Support™. This will take your practice into the future of care.

2019 EXHIBITS/VENDORS



CYREX LABORATORIES

Cyrex® is a clinical laboratory specializing in functional immunology. Cyrex offers multi-tissue antibody testing, and assessments of predictive antibodies to a variety of antigens, for the early detection and monitoring of today's complex autoimmune conditions.

pH PRESCRIPTION

pH Prescription is committed to providing the highest quality structured water available. We strive to be an industry leader in the development and production of structured water systems for the benefit of mankind throughout the world.

CARDIOLOGY INSTITUTE OF AMERICA

Our cloud based diagnostic platform includes endothelial function testing, Carotid Intima - Media Thickness (CIMT) as well as LORETA neuroimaging. We understand, in an effort to save lives through early detection we must help the practitioner bridge the gap from microvascular dysfunction to cognitive impairment as well as clinical research to clinical implementation.

GENOVA DIAGNOSTICS

Genova Diagnostics is a leading clinical laboratory applying systems-based testing approaches to the diagnosis, treatment and prevention of complex chronic disease. Genova specializes in clinical laboratory services with actionable information.

ICARE Tonometer

The Icare Tonometers were designed to make Tonometry accurate, quick and easy. They do not require an anesthetic or calibration while providing results within seconds. They can be used by almost anyone with or without medical training of any kind.

2019 EXHIBITS/VENDORS



ZEVIA

"Sugar Reduction starts here. What better way to kick the sugar habit than Zevia, the leader in zero calorie, naturally sweetened beverages. We only use Stevia to sweeten our beverages, so there's no sugar, artificial sweeteners, GMOs, caramel coloring, or any other harmful ingredients found in today's beverages."

SOUTHEAST COMPOUNDING PHARMACY

Southeast Compounding Pharmacy does sterile and non-sterile compounding. We do specialize in sterile ophthalmic compound such as Tacrolimus, mitomisis, vancomycin, fortified tobramycin, interferon A, etc. We do make chemotherapy drugs, myers cocktail, trimix, bimix, MICC, hormone cream, topical ointment, gel and cream. We are in business over 5 years with USP 800 equipped facility. We do customize any sterile compound.

RHEOSTASIS

Rheostasis is a novel, physician founded, and physician endorsed nutritional supplement company. Our primary and fundamental mission is to impact the well being of as many people as possible by improving their 'health portfolio' by bringing dynamic biological balance to their bodies. With a plethora of supplements, nutraceuticals and nutritional companies, it has become exceedingly confusing for patients, physicians and other healthcare providers to determine which products would be useful for them and their patients. By coupling scientifically validated foundational nutritionals that can be used as either stand-alone products or for our customers who are being treated by the methods of functional, nutritional and nutrigenomic medicine. Indeed, Rheostasis products are designed to be used in conjunction with functional diagnostics and nutrigenomic testing, thereby making the improvement of a patient's 'health portfolio' simple and clinically impactful.

2019 EXHIBITS/VENDORS



LIGHTSTIM

We at LightStim are driven by our commitment to encourage a proactive approach to health and wellness, and to providing technology that further supports those goals by reinforcing the body's natural inclination for healing & repair. LightStim has designed, engineered and manufactured advanced light based technology (LLLT) used by the aesthetic, medical and wellness communities for almost 20 years. Our unique LightStim MultiWave® Patented Technology is well known for delivering consistently superior results that help practitioners to better serve the patients for whom they care.

THE WHITE PEACOCK INTERACTIVE CENTER FOR PREVENTATIVE MEDICINE/LEMONAID

Debra Clarke AP MSOM and Independent Bemer Distributor Is owner of WPICPM in wellness practice for 20 years. The WPIC offers integrated, preventative health and educational services to the community. Programs include Functional Nutrition, Nutrigenomics, Traditional Chinese Medicine, Massage, Zyro energetic testing , Bemer technology, Hypnosis, and Meditation.

LemonAid is a therapeutic dose of L-Carnitine and D-Ribose powder that has a refreshing taste of LemonAid. Zero calories, Zero Fat, Zero Carbs and certified Gluten Free

SCIENTIFIC HEALTH SOLUTIONS

Scientific Health Solutions was founded to support physicians and other professionals who practice integrative, functional, anti-aging, and alternative health care. We believe that the right nutrients, properly targeted, can make a profound difference to an individual's health and vitality.

Unlike so many dietary supplements available today, our formulas are not created by marketers. They're developed by medical researchers and leading doctors. Every Formulation utilizes carefully selected ingredients and always manufactured at clinically therapeutic levels.

2019 EXHIBITS/VENDORS



aHA PURE FOODS

Our soups are slow cooked, never processed and are vegan.
"Spreading the "food as medicine" philosophy, one spoonful at a time"

FLORIDA LIONS DIABETIC RETINOPATHY FOUNDATION

The Lions Diabetes Foundation of MD 35 and Florida Lions Retinopathy Foundation provides **free** diabetes and retina screening and education material in the prevention of the leading cause of blindness in adults by identifying and referring potential diabetics. We also support the Florida Diabetic Kids Camps. Lions and Lions Clubs can support the Foundations with Life/Progressive Life Memberships for \$100 which goes toward the Foundations Mission. This Life/Progressive Life Memberships includes an award certificate and a pin. These funds go toward continued support of Free Diabetes Screening and education on prevention of the complications of diabetes. Over the last 6 years, nearly 10,000 people have screened.

A_{1C} MANAGER

A cloud based, electronic tool for patients with diabetes and their health care providers. This simple to use web tool integrates patient data (blood glucose, body weight, prescribed medications, diet, exercise, and stress) into a teaching resource that targets blood glucose and A_{1C} levels.

SENERGY MEDICAL GROUP

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Shalesh Kaushal, MD, PhD

Program Director

Comprehensive Retina Consultants

Chronic Diseases: A Perspective and Metabolic Framework towards their Understanding and Treatment

SUMMARY

One of the most important challenges of modern medicine is the exponential and alarming rise of chronic diseases over the last 50 years. These disorders include hypertension, coronary artery disease, Alzheimer's, diabetes, obesity, macular degeneration, glaucoma, osteoarthritis, pain syndromes and autoimmune disorders. With the tools of modern biochemistry and molecular genetics, we have learned that although the target tissues may be different, at their core these disorders share common pathogenetic events. These include inflammation, oxidative stress, immune dysregulation, mitochondrial dysfunction, alterations of the insulin signaling and mTOR pathways. Collectively, these lead to the loss of cellular and tissue homeostasis and eventually manifest as disease. We will discuss the limitation of current pharmacological approaches in the management of chronic disease and how a different biochemical and clinical framework, by manipulation the protein homeodynamic network of the cell, can be useful to address the root cause of these diseases that so desperately require a meaningful solution.



Mark Houston, MD, MS, MSc, FACP, FAHA, FASH, FACN, ABAARM, FAARM, DABC

Associate Clinical Professor of Medicine
Vanderbilt University Medical School
Director, Thomas Medical Group
Saint Thomas Hospital

New and Revolutionary Concepts in the Pathophysiology, Diagnosis and Treatment of Hypertension: Role of Nutrition, Supplements and Integrative Metabolic Medicine

SUMMARY

This lecture will discuss the mechanisms and finite causes of hypertension: inflammation, oxidative stress and immune vascular dysfunction. The role of vascular biology and endothelial function and dysfunction , membrane physiology, pattern recognition receptors, nitric oxide, cytokines, chemokines and other mediators will be review in regard to the in the pathogenesis of hypertension. Lab testing with plasma renin activity (PRA), aldosterone levels, aldosterone/renin ratio (ARR) micronutrient testing (MNT), endothelial dysfunction (Endopat) and arterial compliance (CAPWA) will be reviewed which will allow the clinician to properly select scientifically validated nutritional supplements, vitamins, minerals, antioxidants and anti-hypertensive drugs for the treatment of hypertension. All scientific treatments for hypertension and related cardiovascular target organ damage using an integrative model of nutrition, lifestyle changes, exercise, weight management, nutritional supplements and pharmacologic agents will be reviewed.



Nathan Bryan, PhD
Adjunct Assistant Professor
Baylor College of Medicine

Nitric Oxide in the Treatment and Prevention of Chronic Disease

SUMMARY

Nitric oxide (NO) is now considered one of the most important and cytoprotective molecules produced in the human body. As we age, we lose the ability to generate NO. The functional loss of NO precedes the structural changes along the vasculature by decades. Loss of NO production is recognized as the earliest event in the onset and progression of most if not all chronic diseases.

This lecture will highlight the science of NO, strategies to diagnose NO insufficiency in patients prior to onset of symptoms and evidence-based strategies to restore NO production in humans. Patients cannot and will not heal without correcting NO production.



Andrew Dillin, PhD

Professor, UC Berkeley/HHMI

Paul F. Glenn Center for Aging Research

Thomas and Stacey Siebel Distinguished Chair
in Stem Cell Research

Metabolic Reprogramming and Longevity

SUMMARY

Longevity is dictated by a combination of environmental and genetic factors. One of the key mechanisms implicated in regulating lifespan extension is the ability to induce protein chaperones to promote protein homeostasis. However, it is unclear whether protein chaperones exclusively regulate longevity. Previous work has shown that activating the unfolded protein response of the endoplasmic reticulum (UPR^{ER}) in neurons can signal peripheral tissues to promote chaperone expression, thus enhancing organismal stress resistance and extending lifespan. Here, we find that this activation not only promotes chaperones, but facilitates a dramatic restructuring of ER morphology in intestinal cells. This restructuring, which includes depletion of lipid droplets, ER expansion, and ER tubulation, depends of lipophagy. Surprisingly, we find that lipophagy is required for lifespan extension and is completely independent of chaperone function. Therefore, UPR induction in neurons triggers two distinct programs in the periphery: the canonical arm through protein chaperones, and a non-canonical mechanism through lipid depletion. In summary, our study identifies lipophagy as an integral component of UPR^{ER}-induced longevity.



Robert Rountree, MD
Institute for Functional Medicine

The Care and Feeding of Our Mitochondria

SUMMARY

Mitochondria are highly specialized organelles with a primary task, which is to generate ATP by catabolizing glucose, fatty acids, and amino acids. However, it is now appreciated that mitochondria do a lot more than supply the cell with energy—they are directly involved in the ways that energy is utilized, by influencing intracellular signaling pathways, mitosis, growth, and cell death. For this reason, mitochondrial dysfunction is implicated in a wide range of chronic diseases, from neurodegenerative disorders to metabolic syndrome to accelerated aging. This presentation will explore the impact of external and internal factors on mitochondrial function. An emphasis will be placed on lifestyle and nutritional strategies for optimizing health and well-being by enhancing mitochondrial regeneration and biogenesis.



Aristo Vojdani, PhD, MSC, CLS

Adjunct Professor, Dept. of Preventive Medicine
Loma Linda University
Cyrex Labs
ImmunoSciences Lab

Personalized Antibody Detection System (PADS) for Early Detection and Prevention of Alzheimer's Disease

Like many autoimmune diseases, the etiology of Alzheimer's disease (AD) is due to a combination of unique genetic predisposition, environmental factors, gut microbiome and lifestyle factors that alter the expression of immune regulatory genes through various mechanisms. The immune reaction against different components of the brain plus other inflammatory molecules contribute to amyloid plaque formation, which is the hallmark of AD. In search of such a possible environmental and toxic chemical mechanism, we used a specific monoclonal antibody made against A β 42 which not only reacted strongly with A β 42, tau protein and α -synuclein, but also had variable reactions with 25 different pathogens or their molecules, some of which have been associated with AD. We also found that bacterial molecules from infectious pathogens can bind to A β P, forming the amyloid plaques. In addition, our results indicate that reaction between A β P-42 antibody with specific chemicals bound to HSA and numerous food antigens might play a role in AD. Finally, we found that the same A β P-42 antibody also reacted with neural proteins involved in AD and growth factors that play important roles in neural regeneration and repair.

We have developed a **Personalized Antibody Detection System (PADS)** that tests for a group of antibodies that are produced by the immune system of an individual against a set of environmental triggers (pathogens, foods and toxic chemicals) that the individual's body cannot tolerate. These specific antibodies have the potential to become disease-specific if they cross-react with particular tissue antigens involved in different autoimmune diseases



David Hagedorn, PhD
CEO, NeuroRead

Medical Neuroscience Applications in the Assessment and Treatment of Pain

SUMMARY

Pain, a component of many chronic conditions, is the leading cause of worldwide disability. Pain affects more Americans than diabetes, heart disease, and cancer combined. An era of dominant opioid treatment has given way to a prudent demand for more objective evaluations and multi-modal treatments. Medical neuroscience offers office-based functional electrophysiology measures, faster digital symptom and treatment risk profiles, and a patient specific integration of neurostimulation and neuromodulation. Primary care and other medical specialists can now offer patients low-cost and non-invasive objective testing that guide several nervous system treatment options.

The use of older evaluation instruments and effective treatments are not necessarily to be replaced, but arguably are better utilized in conjunction with newer research supported assessment and treatment tools. The attendee will gain an overview of these assessment methods, a review of the neuroscience underpinnings for electrophysiology pain markers, and the supported use of neuromodulation and neurostimulation.



Robert Miller, ND

Founder, NutriGenetic Research Institute

How Genomic Insight May Prevent and Reverse Chronic Disease

SUMMARY

Many health challenges relating to increased inflammation are sharply on the rise. It is also clear that toxic substances in our environment affect the epigenome especially in those that are genetically susceptible to it. This can result in an increase in mTOR activity and simultaneously a decrease in autophagy, along with an increase in mast cell activity. Cumulatively, this decreases NADPH which is critical for antioxidants in reducing inflammation. Such an “NADPH Steal” may be a critical component to our long-term health and mitigating chronic diseases.

Genomic testing can identify genetic patterns that, when combined with environmental factors, may upset this delicate and critical balance of mTOR and autophagy and create excess free radicals by multiple mechanisms. Appropriate nutritional intervention and lifestyle changes may bring balance to the mTOR and autophagy pathways, support antioxidant production, reduce free radical production, and most importantly limit the NADPH Steal. Thus, lowering the potential for chronic disease and support recovery from chronic illness.



Alessio Fasano, MD

Professor, Harvard Medical School
Director, Mucosal Immunology and Biology
Research Center, Massachusetts General Hospital
for Children
European Biomedical Research Institute Salerno
(EBRIS) Salerno - Italy

Pathways Toward Development Of Chronic Inflammatory Diseases and Targets to Reverse Inflammation

SUMMARY

Improved hygiene leading to a reduced exposure to microorganisms have been implicated as one possible cause for the 'epidemic' of non-infective chronic inflammatory diseases (CID) in industrialized countries during the past 3-4 decades now affecting millions of individuals. That is the essence of the hygiene hypothesis that argues that rising incidence of these pathologies may be, at least in part, the result of lifestyle and environmental changes that have made us too "clean" for our own good. Apart from genetic makeup and exposure to environmental triggers, three more elements, namely increase gut permeability, inappropriate immune response, and unbalanced microbiome (dysbiosis), have been recently identified being key players in the pathogenesis of CID. Therefore, targeting any of these three additional elements may eventually slow down or even reverse the process of chronic inflammation. A few CID will be discussed as clinical examples of this new paradigm.



Navdeep Chandel, PhD

Professor, Feinberg School of Medicine

Northwestern University

David W Cugell Professor of Medicine & Cell Biology
Dept. of Medicine/Division of Pulmonary & Critical
Care Medicine

Mitochondria control Health and Disease

SUMMARY

The major function of mitochondria in cellular homeostasis has been the generation of ATP through oxidative phosphorylation. However, we have previously demonstrated that mitochondria can serve as signaling organelles by releasing low levels of reactive oxygen species (ROS) that are essential for hypoxic activation of HIF, antigen activation of T cells, cellular differentiation and proliferation of cancer cells. Our recent findings indicate that mitochondria also release TCA cycle metabolites that are necessary for chromatin and DNA modifications. We will present our current findings on how mitochondria affect cellular function beyond ATP production through ROS and TCA cycle metabolites control physiology and pathologies such as neurodegeneration and cancers.



David Sabatini, MD, PhD

Professor, Whitehead Institute
MIT/HHMI
ACS Research Professor

mTOR and Lysosomes in the Control of Growth

SUMMARY

Our lab is interested in the regulation of growth and metabolism by nutrients and for some time we have focused on the mTOR pathway, particularly the nutrient-sensing network anchored by mTOR Complex 1 (mTORC1). I will discuss our latest work on how mTORC1 senses cytosolic and lysosomal amino acids and the role selective autophagy plays. I will highlight our use of a method we developed to profile the metabolite and protein content of organelles to identify proteins that move on and off lysosomes in response to nutrient conditions. I also may present our use of somatic cell genetics to identify new components of metabolic pathways, particularly in mitochondrial one-carbon metabolism.



Sebastian Brandhorst, PhD

Research Assistant Professor
USC Leonard Davis School of
Gerontology

Fasting-mimicking diet reduces risk factors for aging, diabetes, cancer and cardiovascular disease in preclinical and clinical studies

SUMMARY

Prolonged fasting promotes stress resistance, but its effects on longevity are poorly understood. Calorie restriction or major dietary composition changes can have profound effects on healthy aging but the inability of many subjects to adhere to chronic and extreme diets together with the potential of adverse effects limit their application. Aiming to overcome these limitations, we developed a very low calorie/low protein fasting-mimicking diet (FMD) and tested its effects in mice and clinical studies.

In 16-month-old mice, biweekly FMD cycles with an ad libitum diet in the period between FMD cycles, lowered IGF-1 levels, extended longevity, lowered visceral fat, reduced cancer incidence and skin lesions, rejuvenated the immune system, and decreased the size of multiple organs/systems, followed upon re-feeding by an elevated number of progenitor/stem cells and regeneration. Further, the FMD promoted hippocampal neurogenesis and improved cognitive performance.

In a randomized clinical trial, 100 generally healthy US participants were randomized and we tested if 5 days per month for three months of a FMD could reduce risk factors/biomarkers associated with diabetes and cardiovascular disease ([clinicaltrials.gov NCT02158897](https://clinicaltrials.gov/ct2/show/NCT02158897)).

Markers/risk factors for metabolic syndrome and other age-related diseases were favorably impacted after completion of 3 FMD cycles. These effects were larger in participants at risk for age-related diseases. We have since expanded our studies and demonstrate broad efficacy of the FMD in the treatment of chronic diseases.



Keith March, MD, PhD

Professor, University of Florida

Director, Center for Regenerative Medicine

Vice Chief Cardiology Research Professor of
Medicine

Next-Generation ASC Therapies: Moving from Cells to Secretome, Moving from Organisms to Organs

SUMMARY

Adipose-derived Stem/Stromal Cells (ASC) offer exciting therapeutic potential for many medical needs. Our laboratory as well as others has discovered that in a majority of pathological circumstances, much of the therapeutic benefit conferred by these cells is mediated by the complex set of paracrine factors which they secrete. These factors behave synergistically, somewhat like a symphony, thus emulating the normal endogenous physiology of tissue repair, in which such factors are secreted in order to maintain vascular as well as parenchymal homeostasis.

Key activities promoted by the secretome include angiogenesis, neurogenesis, endogenous progenitor cells cycling, anti-apoptosis, inflammatory down-modulation, and anti-fibrosis. We will discuss the practical use of allogenic ASC-derived secretome in a range of disease models, and discuss its utility as a highly practical therapeutic for both in vivo as well as ex vivo treatments designed for organ rescue and repair in vivo as well as in tissue and organ transplantation ex vivo.



Stephen Sinatra, MD, FACC, FACN, CNS

Assistant Clinical Professor of Medicine
University of Connecticut School of Medicine

High Vibrational Living – The Segue to Optimum Health

SUMMARY

There is an emerging medical threat which is often missed, even by highly skilled doctors and informed patients. Along with smoking, emotional stress, and high blood pressure, wireless radiation exposure must now be identified in the home, office or school of anyone exhibiting cardiac and central nervous system symptoms. The most vulnerable tissues to wireless invisible rays are the brain, heart and reproductive systems. Recent research has demonstrated supports sympathetic resonance and has a positive impact on blood pressure, blood thinning and central nervous system harmony.



Nathan Price, PhD

Co-Director, Institute for Systems Biology

Systems Biology approaches to Health and Wellness

SUMMARY

Healthcare is becoming more proactive and data-rich than anything before possible. Lee Hood and I have recently launched a data-rich longitudinal study that integrates genomics, proteomics, metabolomics, microbiomes, clinical chemistries and wearable devices of the quantified self to monitor wellness and disease transitions. These resulting personal, dense, dynamic data (PD3) clouds enable the creation of a field we term “scientific wellness” that aims to help individuals take informed actions to enhance their wellness and help reduce their risk for disease — informed by PD3 clouds. Scientific wellness becomes a key to understanding disease because it provides a framework in which to detect the earliest transition states in a data-rich context. Analyses of these data — individually and in aggregate — will enable us to identify scientifically-validated metrics for wellness, see early warning signs of disease, and develop approaches to reverse disease in its early stages. I will present results from our proof-of-concept pilot study in a set of 108 individuals (the Pioneer 100 study) as well as data from thousands of subsequent individuals that have been profiled to date. I will show how the interpretation of these data led to actionable findings for individuals to improve health and reduce risk drivers of disease, and how they are giving us insights into human biology. I will also give views of how this endeavor relates to the future of health and big data analyses for biology and medicine



Acknowledgements

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CCDBR108@gmail.com
352 775 1010**