



New Jersey Institute for Food, Nutrition, and Health

Rutgers, The State University of New Jersey
61 Dudley Road, New Brunswick, NJ 08901-8520

3rd IFNH RESEARCH DAY

November 05, 2021

AGENDA

- 8:30-8:40am** ***Welcome and Report from the IFNH Director (M. Gloria Dominguez-Bello)***
- 8:40-9:25am** ***Annual Reports from IFNH Leadership (3 min presentations)***
- 8:40am IFNH Center Directors
1. George M. Carman, **Rutgers Center for Lipid Research**
 2. Daniel Hoffman, **Center for Childhood Nutrition Research**
 3. Liping Zhao, **Center for Nutrition, Microbiome, and Health**
 4. Sue Shapses, **Center for human Nutrition, Exercise, and Metabolism (NExT)**
 5. James E. Simon, **Center for Agricultural & Food Ecosystems (RUCAFE)**
- 9:05 am IFNH Program Directors (3 min presentations)
1. Joshua Miller, **One Nutrition Program**
 2. Peggy Policastro, **Culinary Health Program**
 3. Daniel Hoffman, **NJ Healthy Kids Initiative**
- 9:15 am IFNH-affiliated Cores and Facilities (3 min presentations)
1. Harini Sampath/James Simon/Qingli Wu, **Analytical Core**
 2. Sue Shapses, **Clinical, Exercise and Body Composition Facilities**
 3. Liping Zhao, **Microbiome Analysis Core**
- 9:30-12:10pm** ***Research Presentations***
- 9:30 am ***Rutgers Center for Lipid Research***
Chair: Harini Sampath
- Hiba Tawfeeq*
Liver specific ablation of the liver fatty acid binding protein (LFABP; FABP1) gene protects female mice against Western diet-induced metabolic changes
- Chelsee Holloway*
Retinoic acid regulates pyruvate dehydrogenase kinase 4 (Pdk4) and contributes to modulating fuel utilization in the heart of adult females: insights from mice lacking beta-carotene 9',10' dioxygenase (Bco2)
- Jeffrey B. Burns*
GCN2 status regulates ApoB100 protein levels during asparaginase exposure

Zakiyah Henry

Tissue-specific role of FXR functionality in the development of NASH in female mice

Hussein Erguven

Oxidative stress-sensing functional lipids

10:00 am

Center for Childhood Nutrition Research Presentations

Chair: Daniel Hoffman

Nurgul Fitzgerald

Food intake patterns among elementary school children in New Brunswick

Abigail David

Grow. Prepare. Eat.

Alison Brown

Virtual Nutrition Education during COVID-19 Pandemic

Emily Barrett

Leveraging pregnancy cohorts to study children's health and development

Mark McGovern

Lifecycle Effects of Inequality

10:35 am

Center for Nutrition, Microbiome and Health

Chair: Liping Zhao

Haipeng Sun

Grain consumption affects the microbiome structure during pregnancy

Diana Roopchand

Plant bioactives and metabolic health

Max Haggblom

Sponge microbiome

Rebecca Brittain

Wild orangutan gut microbiota across a fluctuating and unpredictable nutritional landscape

Gary Guojun Wu

Seesaw-networked Guilds as a Common Microbiome Signature for Human Diseases

11:05 am

Center for Nutrition, Exercise and Metabolism

Chair: Sue Shapses

Traci McCarthy

Fetal Heart Rate and Blood Flow Changes During Resistance Exercise

Jordan Levy

General Control Non-Derepressible 2 is Required to Maintain Core Body Temperature and Whole-Body Metabolism During Acute Cold Stress

Ogilvie, Anna

Dietary sources of endotoxin: methodology and implications

Mateo Leganes-Fonteneau

Effects of resonance breathing on cardiac interoception



11:40am

Center for Agriculture & Food Ecosystems (RUCAFE)

Chair: James E. Simon

Emily Merchant

Traditional and indigenous foods for food security and food sovereignty

Sauna Downs

The influence of food environments on food security resilience during the COVID-19 pandemic: an examination of urban and rural differences in Kenya

Xenia Morin and AJ Both

A teaching and research garden for sustainable and edible crop production

Dena Seidel

Fields of devotion: Using storytelling and digital filmmaking as a vehicle for research translation and community engagement

12:10

Closing remarks from the IFNH Director (M. Gloria Dominguez-Bello)



BIOS

Carman, George M., PhD. Director, Rutgers Center for Lipid Research

Dr. Carman is the Board of Governors Professor of Food Science and Founding Director of the Rutgers Center for Lipid Research, New Jersey Institute for Food, Nutrition, & Health. He received his B.A. degree from William Paterson University, M.S. degree from Seton Hall University, and Ph.D. degree from the University of Massachusetts. His postdoctoral training was at the University of Texas Medical School in Houston. Dr. Carman's laboratory is recognized internationally for its work on the biochemical and molecular characterization of phospholipid metabolism/signaling in the yeast *Saccharomyces cerevisiae*. He has authored over 200 refereed publications and has written several review articles on phospholipid metabolism and on its regulation. Dr. Carman is a Fellow of the American Academy of Microbiology, and is the recipient of the Avanti Award in Lipids-American Society for Biochemistry and Molecular Biology (ASBMB), Supelco/Nicholas Pelick Research Award-American Oil Chemists Society, Faculty Mentor of the Year Award-Compact for Faculty Diversity, Chancellor's Award Lectureship in Neuroscience-LSU School of Medicine, Journal of Lipid Research Lectureship Award, Selman A. Waksman Honorary Lectureship Award, Rutgers University Board of Trustees Award for Excellence in Research, and the New Jersey Agricultural Experiment Station Research Excellence Award. He is a former chair and organizer of the Gordon Research Conference on Lipid Metabolism and the Keystone Symposium on Lipid Second Messengers and served as chair of the ASBMB Program Planning Committee and the ASBMB Meetings Committee. He served as President of the Theobald Smith Society, the New Jersey branch of the American Society for Microbiology, and served on the Physiological Chemistry and the Biochemistry and Biophysics of Membranes Study Sections of the National Institutes of Health and served as Associate Editor of the Journal of Biological Chemistry. Dr. Carman currently serves as an Associate Editor of the Journal of Lipid Research and Executive Editor of Analytical Biochemistry.

Dominguez-Bello, Maria Gloria, PhD. Director, NJ Institute for Food, Nutrition, and Health

Dr. Dominguez-Bello is the Henry Rutgers Professor of Microbiome and Health at Rutgers University, affiliated to the Department of Biochemistry and Microbiology, and to the Department of Anthropology. She is also the interim Director of the Institute for Food Nutrition and Health (IFNH). She is a Fellow of the American Academy of Microbiology, and of the Infectious Disease Society of America (IDSA), and has been a member of the Editorial Board or a reviewer at several scientific journals, and invited reviewer at funding entities, including NSF, NIH, and different Foundations. She has published extensively on vertebrate-microbial symbiosis, acquisition and development of the human microbiome, effects of antimicrobial modern practices on the microbiome, and strategies for restoration. She works on gradients of urbanization in South America and Africa, through global synergistic collaborations. She is leading the global initiative of the Microbiota Vault, to preserve the diversity of the microbes relevant to human health.

Hoffman, Daniel J., PhD. Director, Center for Childhood Nutrition Research

Dr. Hoffman received his PhD in Nutritional Biochemistry and Physiology in 1999 from the Tufts University Friedman School of Nutrition Science and Policy, completed post-doctoral training at Columbia University and is now an Associate Professor in the Departments of Nutritional Sciences and Epidemiology and the Director of the Center for Childhood Nutrition Research (CCNR). Dr. Hoffman's area of expertise is energy metabolism, body composition, and international nutrition. As the director of the CCNR, Dr. Hoffman is responsible for coordinating interdisciplinary research on childhood nutrition as well as managing program development for a Robert Wood Johnson Foundation initiative and the Rutgers Program in International Nutrition. The focus of Dr. Hoffman's research program is to study the relationship between poor growth in childhood and the development of chronic diseases in adulthood. To accomplish this, Dr. Hoffman directs or collaborates on research projects in Brazil and Mexico to better understand how poor growth early in life influences metabolism and body composition later in life as potential risk factors for chronic diseases. In



addition, Dr. Hoffman is a Co-Principal Investigator of a project in Kenya and Zambia to evaluate the impact of increased intake of African-Indigenous Vegetables on dietary diversity and health in rural households. An author of numerous papers and chapters on energy metabolism, body composition, and pediatric nutrition, Dr. Hoffman is also the Deputy Editor of the British Journal of Nutrition and Public Health Nutrition and a member of the Editorial Board of Journal of Nutrition and Annals in Human Biology. Aside from academic work, Dr. Hoffman is an expert consultant to the International Atomic Energy Agency of the United Nations where he provides advising on nutrition-related projects using stable isotopes.

Miller, Joshua, PhD. Director, One Nutrition

Dr. Miller is Professor and Chair of the Department of Nutritional Sciences in the School of Environmental and Biological Sciences at Rutgers and is the coordinator of the IFNH One Nutrition program. Dr. Miller's primary expertise is in B vitamins (folate, vitamin B12, vitamin B6, riboflavin) and one-carbon metabolism. His research focuses on the influences of B vitamins and related metabolites on cognitive function and risk of Alzheimer's disease and dementia in older adults. He also has research interests in novel strategies for assessing vitamin B12 status and absorptive capacity, and the influence of riboflavin on blood pressure in individuals genetically predisposed to hypertension. His work has been funded by the NIH, the American Cancer Society, and the Breast Cancer Research Programs of the State of California and the U.S. Department of Defense.

Policastro, Peggy, PhD, RDN. Director, Culinary Health Program

Dr. Policastro is the Director of the Culinary Health Program at the IFNH. Dr. Policastro works with children and adolescents using Behavioral Economics to nudge individuals towards healthier food choices. Dr. Policastro is a Registered Dietitian who was named the 2012 Academy of Nutrition and Dietetics Nutrition Educator of the Year, recipient of 2016 Mary Abbott Hess Award for Recognition of an Innovative Food/Culinary Effort and was recently named 2020 Top Women in Metro New York Foodservice & Hospitality-Education Category. She directs the IFNH Student Ambassador Program and was named 2018 Rutgers University Student Supervisor of the Year. Dr. Policastro works closely with Chefs to institute Menus of Change principles and is an active member of the Menus of Change University Research Collaborative where she holds the position of Chair of the Research Working Group. Peggy holds a PhD in Interdisciplinary Studies-Nutritional Science and Psychology from Rutgers University

Sampath, Harini, PhD. Co-Director, Bioanalysis and Metabolomics Core

Dr. Sampath is an Assistant Professor in the Department of Nutritional Sciences and the New Jersey Institute for Food, Nutrition, and Health, at Rutgers University. In her work, she uses her training in Biochemical and Molecular Nutrition to identify nutritionally and genetically-modified pathways leading to metabolic diseases such as type 2 diabetes and cardiovascular disease. Her work is funded by the NIH, the Marie-Curie Foundation, and the American Heart Association and has been published in numerous journals including the Journal of Biological Chemistry, the American Journal of Physiology, Cell Metabolism, and Endocrinology. Harini also serves on the Editorial Board of *Biochimica et Biophysica Acta – Molecular and Cell Biology of Lipids* and on the Steering Committee for the International Conference on the Bioscience of Lipids (ICBL). Harini received her Ph.D. from the University of Wisconsin-Madison in 2008 and her B.S. from the University of New Hampshire in 2002.

Simon, James, PhD. Director, Center for Agriculture and Food Ecosystems (RUCAFE)

Dr. Simon serves as the Director of the Center for Agricultural Food Ecosystems (RUCAFE), whose mission is to bring a uniquely diverse and holistic approach to researching food systems and designing innovative and culturally appropriate methods to sustainably nourish our growing human population in balance within our global ecosystems. Simon, a Distinguished Professor of Plant Biology, also serves as Director of the New Use Agriculture and Natural Plant Products Program (NUANPP), SEBS, which seeks to identify new crop



opportunities, new applications of bioactive and nutritious plant compounds and new products from fruits, vegetables, herbs and marine organisms. Simon's research programs are funded by the NIH, USDA, USAID and State Department and focus on food systems, improving food security and using agriculture as key economic driver to improve income generation and human capacity development. As a plant biologist, Simon's expertise is also in plant genetics and breeding for disease resistance, nutrition, and flavor; community development; food safety and quality control. He has earned many national and international awards including The Chancellor's Award for International Impact, Distinguished Service to Agriculture Award, Special Service Award, Association for International Agriculture & Rural Development, Recipient of the International Excellence Award for Scientific Excellence in a USAID Collaborative Support Research Program, Board for International Food Agricultural Development, USAID, and other industry and academic awards for research excellence and impact. Internationally, Simon developed market-first, science-driven models of commercialization to improve food security and income generating opportunities for vulnerable populations that over time led to research projects around the world with a focus in sub-Saharan Africa. Simon's strength and interest is in bringing together multi-disciplinary teams of faculty, universities and the public and private sector into strategic partnerships that build new or strengthen food ecosystems.

Shapses, Sue, PhD, RDN. Director for the Center for human Nutrition, Exercise and Metabolism (NExT)

Dr. Shapses is the Director for the Center for Human Nutrition, Exercise and Metabolism at the Rutgers Institute for Food, Nutrition, Health, a Professor in the Department of Nutritional Sciences, and an Adjunct Professor in the Department of Medicine, Rutgers-RWJ Medical School. She received her doctoral training from Columbia University (IHN) followed by postdoctoral training at Albert Einstein College of Medicine (Critical Care Medicine), Columbia University (Orthopaedic Biochemistry) and experience in the Department of Endocrinology, University of Sydney, Australia. Dr. Shapses has served on the Institute of Medicine committee to develop the current Dietary Reference Intakes for vitamin D and calcium. She serves on the Clinical Advisory committee for the National Aeronautics Space Administration preservation of skeletal bone health in NASA astronauts. Dr. Shapses devotes time to serve as Associate Editor for the *Am. J. Clin. Nutr.*, and as Editor for Nutrition, Exercise & Lifestyle Section of *Current Osteoporosis Reports*. Dr. Shapses teaches undergraduate and graduate students and works closely with trainees on clinical and translational projects. Dr. Shapses' has received awards from NIH, USDA, NASA, Foundations, and industry support with research emphasizes the endocrine regulation of obesity and osteoporosis using caloric restriction and micronutrients to study gastrointestinal absorption and bone metabolism. Studies also address dietary protein and quality, with a new focus on food endotoxin and its inflammatory potential.

Wu, Qingli, PhD. Co-Director, Bioanalysis and Metabolomics Core

Dr. Wu is the co-Director of the new Bioanalysis and Metabolomics Core in the IFNH and the New Use Agriculture and Natural Plant Products Program. As an Associate Research Professor, Department of Plant Biology his expertise is in natural products chemistry and bioanalysis for bioavailability and metabolomics. Dr. Wu's research focuses on discovering new applications of bioactive and nutritious plant compounds and new products from botanicals. Wu has served as co-PI with in several national NIH consortium leading work in quality control and bioanalysis for the botanical/bioanalysis cores of different NIH/NCCAM programs, (i) Purdue University and University of Alabama National Botanical Center on Age Related Diseases (2000-2010); (ii) NIH Center of Excellence for Research on Complementary and Alternative Medicine for Alzheimer's disease on the protective roles provided by grape derived polyphenolic compounds (2007-2012) and (iii) NIH Centers for Advancing Research on Botanicals and Other Natural Products (CARBON) Program "Dietary Botanicals in the Preservation of Cognitive and Psychological Resilience" (2015-2021) and most recently the new U19 NIH CARBON program, "Influence of Dietary Botanical Supplements on Biological and Behavioral Resilience" the latter three led by Mt. Sinai Medical School, and is a co-PI with Nick Bello for an NIH R01 titled "Effects of raspberry ketone on body weight and metabolic outcomes in obesity" (2017-2022).



Zhao, Liping, PhD. Director, Center for Nutrition, Microbiome, and Health

Dr. Zhao is the Eveleigh-Fenton Chair of Applied Microbiology, Department of Biochemistry and Microbiology at the School of Environmental and Biological Sciences. His work consists of developing molecular and genomic tools for systems understanding and predictive manipulation of the complex microbial communities in human and animal guts. His research addresses interactions between diet and gut microbiota in onset and progression of chronic diseases such as obesity and diabetes, and also in formulating interventions integrating traditional Chinese medicine and medicinal foods into modern day diet, to modulate the relationship between gut microbiota and human host, to achieve preventive health care.

