Scientific Presenter Bios

CO-DIRECTORS

Ronald Tompkins, MD, ScD, Sumner M. Redstone Professor of Surgery at HMS and MGH, is a surgeon and scientist who also trained at the Massachusetts Institute of Technology (MIT) receiving a ScD in Chemical Engineering. Dr. Tompkins has been the Chief of the MGH Burn and Trauma Services as well as the Chief of Staff, Shriners Hospitals for Children—Boston for more than 20 years. Dr. Tompkins has been active in medical research supported by more than $200M from the NIGMS in the fields of inflammation and metabolism with emphasis on genomics, proteomics, and small molecule metabolomics. Dr. Tompkins has collaborated for more than two decades with Dr. Ron Davis of the Stanford Genome Technology Center (Department of Biochemistry). Dr. Tompkins has actively participated on the Scientific Advisory Board of OMF since its establishment.

Wenzhong Xiao, PhD, Associate Professor of Surgery (Bioinformatics) at HMS and MGH, directs the MGH Inflammation & Metabolism Computational Center and leads the Computational Genomics Group at Stanford Genome Technology Center. Dr. Xiao received his PhD from the University of California Berkeley. Dr. Xiao develops bioinformatic and statistical tools for use in understanding human diseases, especially in studies of immuno-metabolic response. He focuses on integrative analysis and interpretation of multi-dimensional molecular, cellular, and clinical data of many types of patients, including those with ME/CFS Dr. Xiao's expertise will be essential for the interpretation of the massive data sets that will be collected in this project.

OPEN MEDICINE FOUNDATION

Linda Tannenbaum, is Founder and CEO/President of Open Medicine Foundation (OMF), currently the largest independent non-profit organization funding research in ME/CFS. Ms. Tannenbaum founded OMF in 2012 after her daughter came down with sudden onset ME/CFS. Realizing that open, global collaborative research into this disease was lacking, she established OMF to fundraise and facilitate large-scale research to find a cure for these chronic complex diseases.

INVESTIGATORS

Philip Atherton, PhD, Professor of Clinical, Metabolic & Molecular Physiology, University of Nottingham is classically trained in stable isotope nutritional biochemistry, providing tremendous experience in the inflammation and metabolism fields. His laboratory is in the Royal Derby Hospital under the auspices of our UK Medical Research Council/Arthritis Research UK Centre of Excellence for musculoskeletal ageing research and the newly

awarded NIHR Biomedical Research Centre (BRC) under a clinical musculoskeletal theme. His research seeks identification of central mechanisms regulating metabolism in human musculoskeletal tissues. These interests and expertise will be critical to the Harvard Center.

Jonas Bergquist, MD, PhD, is a Full Chair Professor in Analytical Chemistry and Neurochemistry at the Department of Chemistry at Uppsala University, Adjunct Professor in Pathology at the University of Utah School of Medicine, and Distinguished Professor in Precision Medicine at Binzhou Medical University in Yantai, China. His group is continuously developing general analytical tools for screening and discovery of biomarkers of pathological states. These approaches include identifying relevant clinical applications, advanced sample pretreatment, multidimensional liquid based separation, high resolution mass spectrometry, and multivariate data analysis. Dr. Bergquist studies numerous conditions, including neurodegenerative disorders. His research into ME/CFS is focused on characterizing the neuroimmunological aspects of the disease using proteomics and metabolomics, with a special interest in cerebrospinal fluid studies. He is Director of the OMF Collaborative Research Center for ME/CFS in Uppsala. Dr. Bergquist is a member of the OMF Scientific Advisory Board.

Ron Davis, PhD, Professor of Biochemistry and Genetics at Stanford University School of Medicine, Director of the Stanford Genome Technology Center, Director of the Chronic Fatigue Syndrome Research Center at Stanford University, and Director of the Open Medicine Foundation ME/CFS Scientific Advisory Board. Dr. Davis holds a PhD in chemistry from Caltech and is a member of the National Academy of Sciences. Throughout his career he has made numerous seminal discoveries that have accelerated genetics, genomics, and bioengineering, including over 70 patented technologies that have launched numerous successful companies. His contributions have been recognized by the Gruber Genetics Prize, the Genetics Society of America Medal, the Warren Alpert Prize, and the Personalized Medicine World Conference Luminary Award. In 2013, he was named one of the 7 World's Greatest Inventors by The Atlantic.

Donna Felsenstein, MD, Physician in Medicine and Assistant Professor of Medicine at HMS and MGH, is a senior attending in the Infectious Disease Unit at MGH. She has been diagnosing and caring for patients with ME/CFS since 1979. She has a large number of ME/CFS in her clinical practice, some of whom she has followed for more than 20 years. Dr. Felsenstein has participated in several clinical research studies on ME/CFS. Her clinical expertise in evaluating, diagnosing and treating patients with ME/CFS will be highly valued in the Harvard Center.

Paul Greenhaff, PhD, Professor of Muscle Metabolism, University of Nottingham, is a physiologist and the Deputy Director of the MRC-Arthritis Research UK Centre for Musculoskeletal Ageing Research (Nottingham). Dr. Greenhaff is also an active member of the ARUK Centre for Sport, Exercise and Osteoarthritis and the Musculoskeletal Disease theme of the Nottingham NIHR Biomedical Research Centre. He is classically trained in the field of muscle metabolism with research interests centered on the loss of muscle mass and

the dysregulation of metabolism in ageing, inactivity, inflammation, trauma and disease, and strategies to offset these pathophysiological events. His expertise will be critical to understand what the nutritional and sedentary effects are contributing to patients with ME/CFS in the Harvard Center.

Maureen Hanson, PhD, is the Liberty Hyde Bailey Professor in the Department of Molecular Biology and Genetics at Cornell University. She previously was on the Biology faculty at the University of Virginia, Charlottesville. She holds a Ph.D. in Cell and Molecular Biology from Harvard University, where she also completed an NIH Postdoctoral Fellowship. Her lab is currently carrying out collaborative studies on ME/CFS concerning gene expression in immune cells, mitochondrial DNA variation, characterization of extracellular vesicles, and metabolomics, and the effect of exercise on inflammatory markers, metabolism and physiology. She is Director of the Cornell Center for Enervating Neuroimmune Disease. Dr. Hanson is a member of the OMF Scientific Advisory Board.

Daniel Irimia, MD, PhD, Associate Professor of Surgery at HMS and MGH, is a longtime collaborator whose primary interest is in the role of neutrophils in sepsis. Daniel has developed an assay using neutrophil behavior within a microfluidic circuit that predicts sepsis with a high degree of precision (Nature Biomedical Engineering 2:207–214, 2018). Daniel's expertise in neutrophils and neutrophil extracellular traps (NETs) will be important to clinical research in ME/CFS going forward.

Phillip Joseph, MD, is a pulmonary and critical care fellow at Brigham and Women's Hospital (BWH). He received his medical degree from NYU School of Medicine, where he stayed on to complete his internal medicine residency. In addition to his pulmonary and critical care training at the Brigham, he is also completing the Burke Advanced Fellowship in Pulmonary Heart Disease, specializing in pulmonary hypertension and exercise physiology. His research interests focus on using invasive exercise testing to explain the pathophysiology of ME/CFS. After fellowship, he will be joining the faculty of the Yale Pulmonary, Critical Care, and Sleep Medicine Division and will be continuing his work in invasive exercise testing.

Amel Karaa, MD, Assistant Professor of Pediatrics at HMS and MGH, is a board-certified pediatrician with specialty in medical genetics. This is an expertise that is very much needed in our ME/CFS research for many reasons but particularly because many mutations are and have been discovered but there is little medical expertise to assist us to better understand the medical implications of these mutations. She treats many ME/CFS patients in the MGH Mitochondrial Disorders Clinic will be critical to coordinate and recruit patients as well as interpret the multiple genomic findings in patients. In addition, she is critical to coordination with the mitochondrial genomic specialists at the MGH Center for Genomic Medicine.

Anthony Komaroff, MD, Distinguished Simcox-Clifford-Higby Professor of Medicine at HMS, and Senior Physician at BWH. He served for 15 years as Director of the Division of General Medicine and Primary Care at BWH. Dr. Komaroff's contributions to ME/CFS

include his pioneering work in the definition of, epidemiologic studies of the prevalence of the illness, and assessment of the biological changes present in chronic fatigue syndrome. He will be a consultant to the Harvard Center and he currently leads the human studies core at the Columbia NIH-funded ME/CFS Collaborative Center.

Janet Mullington, PhD, Professor of Neurology at HMS and BIDMC, is Director of the BIDMC Clinical Research Center and directs the HMS Human Sleep and Inflammatory Systems Laboratory. Dr. Mullington is a well-respected expert in the physiological and neurobehavioral effects of insufficient and/or inadequate quality sleep including autonomic, metabolic and inflammatory system consequences of sleep loss. Her perspective and participation will be extremely helpful for our Harvard Center particularly as issues relate to the very common symptoms of non-restorative sleep and sleep disorders in ME/CFS patients.

Wei-Jun Qian, PhD, is a bioanalytical chemist whose research centers primarily on global and targeted quantification of proteins and post-translational modifications (PTMs), particularly redox modifications and phosphorylation. Dr. Qian is currently a Senior Staff Scientist and the Team Lead for Proteomics at PNNL, and has been the recipient of the NIH Director's New Innovator Award and the Presidential Early Career Award for Scientists and Engineers (PECASE). Dr. Qian's team has significantly advanced the sensitivity and robustness of selected reaction monitoring (SRM)-based targeted quantification, thus enabling the direct quantification of extremely low-abundance proteins, protein isoforms, and PTMs for broad biomedical applications. Dr. Qian's expertise in PTM and SRM efforts will directly benefit analysis of ME/CFS patient samples.

Michael VanElzakker, PhD, Research Fellow at the MGH and HMS Martinos Center for Biomedical Imaging in the Neurotherapeutics Division, and lecturer at Tufts University. As a graduate student, Dr. VanElzakker wrote an influential hypothesis paper on the potential role of the vagus nerve in ME/CFS that has now been downloaded more than 10,000 times. Dr. VanElzakker's expertise in neuroscience is focused on identifying abnormal patterns in brain metabolism, inflammation, structure, and function in this condition. He has enthusiastically engaged the ME/CFS community as both a scientist and patient advocate. Dr. VanElzakker will be critical to develop and conduct the neuroimaging clinical studies with the Martinos Center, which is one of the most advanced neuroimaging centers in the world.