

The Evidence Base for Lyme Infection-Associated Chronic Illnesses Treatment

Committee Meeting 3

Speaker Biographies

Bethany Alcauter, Ph.D., M.P.H.

Director of Research and Public Health Programs, National Center for Farmworker Health

Bethany directs a national program focused on reducing the burden of infectious disease among agricultural worker communities as part of a cooperative agreement with the Centers for Disease Control and Prevention. She holds a B.S. in community health, a M.P.H. in epidemiology, and a Ph.D. in occupational epidemiology from the University of Texas Health Science Center. Her areas of expertise are focused on community-driven and participatory research, engaging agricultural and low-wage workers, and occupational health and safety issues for workers employed in agriculture and construction. Bethany also runs a small farm raising poultry, goats, and beef cattle in Central Texas with her family. Prior to NCFH, Bethany worked in local WIC clinics and in labor organizing and participatory research with immigrant workers.

Linda Bockenstedt, M.D.

Harold W. Jockers Professor of Medicine, Yale School of Medicine

Dr. Linda Bockenstedt is the Harold W. Jockers Professor of Medicine, Section of Rheumatology at Yale School of Medicine. She received her undergraduate degree in chemistry and physics from Harvard College and is a graduate of the Ohio State University School of Medicine. After completing residency training in medicine and serving as Chief Resident in Medicine at Yale, Dr. Bockenstedt obtained rheumatology clinical and research fellowship training at the University of California, San Francisco. She has been a faculty member at Yale School of Medicine since 1989, where she directs a research program devoted toward understanding the pathogenesis of Lyme disease, an infection-related rheumatic disease. Her research has been continually supported by the National Institutes of Health since 1990, and she is internationally recognized for her studies of the host immune response to spirochetal infection. As a physician-scientist, she also is an active clinician and educator for medical trainees.

Roberta DeBiasi, M.D., M.S.

Robert H. Parrott Professor of Pediatric Research, Children's National Hospital; Principal Investigator, Children's National Research Institute

Roberta Lynn DeBiasi is chief of the Division of Pediatric Infectious Diseases and co-director of the Congenital Zika Program at Children's National Hospital. She holds appointments as a tenured professor of Pediatrics and Microbiology, Immunology and Tropical Medicine at George Washington University School of Medicine & Health Sciences, a Robert H. Parrott professor of pediatric research, as well as principal investigator in the Center for Translational Research at Children's National Research Institute. After graduating Phi Beta Kappa from Boston University, she received a Doctorate in Medicine at the University of Virginia School of Medicine and completed an internship and residency in Pediatrics at the University of California, Davis Medical Center. She completed her fellowship in Pediatric Infectious Diseases at the University of Colorado/Denver Children's

Hospital and served on the faculty for ten years in Denver, prior to joining Children's National/GWU in 2005. Dr. DeBiasi treats normal and immunocompromised children hospitalized with severe infections at Children's National Medical Center. She leads the Children's National Ebola and Emerging Infections Task Force and co-leads the CNH Congenital Zika Program, interfacing with regional, national, and international authorities in these roles. Dr. DeBiasi's research expertise includes basic science as well as clinical/translational research. She serves as Principal Investigator for research and clinical trials focusing on severe and emerging viral infections affecting pregnant women, neonates, immunocompromised hosts, and normal children. In addition, Dr. DeBiasi's research portfolio includes a study evaluating the burden of pediatric Lyme disease, as well as the long-term outcomes of Lyme infection in children.

Monica E. Embers, Ph.D.

Associate Professor of Microbiology and Immunology; Director of Vector-Borne Disease Research, Tulane School of Medicine

Monica E. Embers is an associate professor of Microbiology and Immunology and director of Vector-Borne Disease Research at Tulane School of Medicine. Dr. Embers' first research goal is to examine the efficacy of antibiotic treatment during disseminated *B. burgdorferi* infection using xenodiagnosis in the nonhuman primate model of Lyme disease. Evaluation of the phenotype of spirochetes that survive in the presence of doxycycline is a major priority of her project. Another interest is in the development of a quantitative multi-antigen test that expands detection limits and helps to distinguish persistent infection from clinical cure. Natural infection of animals, including nonhuman primates, with tick-borne pathogens is the hallmark of her research program. Dr. Embers' research program regarding *Borrelia burgdorferi* and Lyme disease is designed around three central themes: 1. antibiotic efficacy against Lyme disease; 2. novel therapeutic strategies to eradicate the infection; and 3. immunodiagnosis for *B. burgdorferi* infection and cure. Dr. Monica Embers earned her Ph.D. in Microbiology and Immunology at the Pennsylvania State University College of Medicine.

Brian A. Fallon, M.D., M.P.H.

Professor, Psychiatry, Director, Center for Neuroinflammatory Disorders and Biobehavioral Medicine, Lyme and Tick-Borne Diseases Research Center, Columbia University Vagelos College of Physicians and Surgeons

Brian A. Fallon is the director of the Center for Neuroinflammatory Disorders and Biobehavioral Medicine and director of the Lyme and Tick-Borne Diseases Research Center at Columbia University. A graduate of Harvard College, he obtained his M.D. degree from the Columbia University College of Physicians and Surgeons, as well as a master's degree in public health epidemiology from Columbia University. He did his medical internship at Columbia University Medical Center and research training and an NIH fellowship in biological psychiatry at Columbia Presbyterian Medical Center and the New York State Psychiatric Institute. In addition to his work on illness anxiety, hypochondriasis, obsessive compulsive disorder, and somatoform disorders, Dr. Fallon is recognized internationally for his research on neurologic and neuropsychiatric Lyme disease. He has served on expert panels for the National Institutes of Health in different areas, including OCD and neurologic and chronic Lyme Disease, and has received over \$10 million in both private and governmental grants to continue his research. He is the recipient of many awards, including the Laughlin Award from the American College of Psychiatrists, two commencement awards from the Columbia University College of Physicians and Surgeons (Richard Raynor Watson Award and the Titus Munson Coan Prize for best essay in Biomedical Research ("The Rise of Tuberculosis among the Homeless Mentally Ill"), the Columbia University Horwitz Award for excellence in Research, the Columbia University Medical Student Teacher of the Year award for psychiatry, a NARSAD Principal Investigator Award (2006), and the Roseke award from the American Psychiatric Association for outstanding teaching to medical students (2008). His major research interests cut across the boundaries of medicine, psychiatry, nuclear medicine and neurology. A primary focus is on the pathophysiologic mechanisms and treatment underlying persistent cognitive impairment, fatigue, and pain among patients with histories of Lyme or other Tick borne diseases. This interest leads to collaborative studies involving proteomics, genomics,

neuroimaging, cognitive remediation, treatment trials, and the search for more sensitive and specific diagnostic biomarkers.

Erol Fikrig, M.D.

Waldemar Von Zedtwitz Professor of Medicine; Professor of Epidemiology; Professor of Microbial Pathogenesis, Yale School of Medicine

The Fikrig laboratory investigates vector-borne diseases. Studies are directed toward understanding Lyme disease, flaviviral infections including dengue and West Nile viruses, and malaria. Efforts on Lyme disease include exploring immunity to *Borrelia burgdorferi*, selective *B. burgdorferi* gene expression *in vivo*, and the immunobiology of Lyme arthritis. Flaviviruses and *Plasmodium* are used as models to understand the molecular interactions between pathogens, their arthropod vectors and their mammalian hosts. Finally, we are developing new approaches to prevent ticks and mosquitoes from feeding on a vertebrate host, thereby interfering with pathogen transmission.

Ravindra Ganesh, M.D., M.B.B.S., M.P.H.

Associate Professor of Medicine; Medical Director, Post COVID Care Clinic at Mayo Clinic

Dr. Ganesh received his MD from the University of Wisconsin and did his Internal Medicine residency at the Johns Hopkins Osler Residency Program. He is a consultant in General Internal Medicine and an Associate Professor of Medicine at the Mayo Clinic in Rochester. He also serves as the Practice Chair for the section of Integrative Medicine and Health with particular interest in Fibromyalgia, Chronic Fatigue, and supplements, and is the Medical Director of the Post COVID Care Clinic at Mayo Clinic, which has seen over 450 patients with post COVID syndrome.

Ryan Hurt, M.D., Ph.D.

Professor of Medicine; Director, Post-COVID Research and Practice, Mayo Clinic

Ryan Hurt is a general internal medicine physician at Mayo Clinic Rochester and serves as the Vice Chair of Practice and Vice Chair of Research in the Division of General Internal Medicine. Dr. Hurt has a special interest in clinical nutrition, intestinal failure, and Post-COVID Syndrome. His clinical focus includes expertise in evaluation and management of complex medical conditions including diagnostic workup and coordination of complex medical care, expertise in the management of patients requiring home parenteral and enteral nutrition, and expertise in the evaluation and management of patients with long-term consequences of COVID-19. Dr. Hurt is actively involved in numerous research projects involving clinical nutrition, Post-COVID Syndrome, and other general internal medicine areas.

Esther Melamed, M.D., Ph.D.

Assistant Professor, Neurology, University of Texas at Austin, Dell Medical School

Esther Melamed is a board-certified neurologist and assistant professor in the Department of Neurology at Dell Medical School. She specializes in the care of adults with multiple sclerosis (MS), neuromyelitis optica, transverse myelitis and a variety of neuroinflammatory conditions. She believes in taking a holistic and individualized approach to patient care and enjoys counseling patients and their families on diagnosis and management of their conditions. She is a principal investigator of a group of researchers at The University of Texas at Austin working on understanding genetic, environmental and sex differences in MS and advancing patient-specific treatments for MS care. She is involved in teaching several courses on MS and autoimmune disorders targeted toward neurology residents, medical students at Dell Medical School and undergraduate students at UT Austin. Prior to joining the

UT Health Austin Multiple Sclerosis and Neuroimmunology Center in November 2017, she founded the MS and Neuroimmunology Clinic at Dell Seton Medical Center in Austin in June 2016. She received her undergraduate degree in neuroscience at the University of California, Los Angeles. She completed her medical degree and doctorate training through the Medical Scientist Training Program at the University of California, Los Angeles; internship in internal medicine at Cedars-Sinai Medical Center in Los Angeles; and neurology residency and neuroimmunology fellowship at Stanford University, where she served as the chief resident of education. She has been the recipient of several Neurology Clerkship Medical Student Teaching Awards, UCLA Chancellor's Humanitarian Award, Chancellor's Service Award and Women 4 Change Leadership Award.

Ilhem Messaoudi Powers, Ph.D.

Professor and Chair, Department of Microbiology, Immunology and Molecular Genetics, University of Kentucky, College of Medicine

Ilhem Messaoudi Powers is a professor and chair of the department of microbiology, immunology, and molecular genetics at the University of Kentucky, College of Medicine. Through the course of her research career, Dr. Messaoudi has been part of more than 130 manuscripts and has been invited to present at more than 90 seminars. Some of her notable awards include the American Society of Microbiology Distinguished Lecturer (2017-2019), the Women and Diversity Paper of the Year in 2015, and the Dolph O. Adams Award from the Society of Leukocyte Biology (2014), recognizing excellence in researching cellular and molecular mechanisms of host defense and inflammation. Dr. Messaoudi is a fellow of the American Academy of Microbiology and a member of the American Association of Immunologists, Society of Leukocyte Biology, and the American Society of Microbiology. She earned her Ph.D. in immunology at the Cornell University Weill Graduate School of Medical Sciences in conjunction with Memorial Sloan-Kettering Cancer Center in New York City. She completed her postdoctoral fellowship at the Vaccine and Gene Therapy Institute at Oregon Health and Science University.

Amina Qutub, Ph.D.

Associate Professor, Burzik Professor in Engineering Design, Department of Biomedical and Chemical Engineering, University of Texas at San Antonio

Amina received her PhD in Bioengineering from the University of California, Berkeley and UCSF in 2004, and a B.S. in Chemical Engineering from Rice University in 1999. Following her postdoctoral training in Biomedical Engineering at Johns Hopkins University, School of Medicine (2004-2009), she joined Rice University as an Assistant Professor in the Department of Bioengineering (2009-2018). In 2014, Amina also cofounded DiBS, an adaptive data visualization startup developing technologies to learn, present and interpret high-dimensional biomedical data. Amina joined the University of Texas, San Antonio in Fall 2018 as an Associate Professor in the Department of Biomedical Engineering. Joining UTSA with a research focus that intersects Brain Health, Engineering and Data Science, she is a member of the Joint UTSA/UTHSC Graduate Group in Biomedical Engineering and the Brain Health Consortium. Amina is a NSF CAREER and NSF Neural & Cognitive Systems awardee; and her research has been supported by NSF, NIH, the Cancer Prevention Research Institute of Texas, the Kleberg Foundation, the Hamill Foundation, and the National Academies Keck Future Initiatives. She has published more than 45 peer-reviewed papers and presented more than 120 invited seminars, including eight keynote addresses, in the fields of systems biology, multiscale modeling, and precision medicine. Amina also served as scientific lead of the 2014-2015 DREAM Biomedical Big Data Algorithm Challenge to develop models to predict outcomes for acute myeloid leukemia patients; won the 2017 Bioinformatics Peer Prize for software to analyze high-dimensional biomedical data; and in 2017, co-launched the Texas Medical Center data workshops, expanding the biomedical data workshops to UT-San Antonio in 2018.

Michal Caspi Tal, Ph.D.

Principal Scientist, Department of Biological Engineering; Associate Scientific Director, Center for Gynepathology Research, Massachusetts Institute of Technology

Michal Caspi Tal is an immunoengineer, and a Principal Scientist at the Massachusetts Institute of Technology (MIT). Dr. Tal leads the Tal Research Group within the department of Biological Engineering and also serves as the associate scientific director of the Center for Gynepathology Research. Dr. Michal Tal is working to identify the connections between infections and chronic diseases. Her research is focused on creating predictive diagnostics, and generating actionable information providers can use to connect with and care for patients to improve diagnosis and treatments for invisible chronic diseases. From tick-borne disease to COVID, there are many similarities across chronic inflammatory diseases and important sex differences in these responses, which are the focus of the Tal group. Michal Tal received her Ph.D. at Yale University in Immunobiology under the mentorship of Dr. Akiko Iwasaki researching how immune responses to viruses are impacted by processes such as aging. Dr. Tal then did her postdoctoral training in the laboratory of Irving Weissman at Stanford where she later became an instructor at the Institute for Stem Cell Biology and Regenerative Medicine at Stanford University leading the infectious disease team and studying immunomodulatory mechanisms which impact immune clearance of infectious disease, with a focus on Lyme disease. Michal has been awarded NIH NIAID F31 and F32 pre and postdoctoral fellowships, as well as the Emerging Leader Award from Bay Area Lyme Foundation.

Lisa Sanders, M.D.

Professor of Medicine; Medical Director, Yale New Haven Health Systems Long COVID Consultation Clinic

Dr. Lisa Sanders is the Medical Director of Yale's Long Covid Multidisciplinary Care Center. In addition to her work as a physician and teacher, she writes the popular Diagnosis column for the *New York Times Magazine* and the Think Like a Doctor column featured in the *New York Times* blog, The Well. Her column was the inspiration for the Fox program House MD (2004-2012) and she served as a consultant to the show. In 2010, she published a book titled *Every Patient Tells a Story: Medical Mysteries and the Art of Diagnosis*. In 2019 she collaborated with the *New York Times* on an eight-hour documentary series on the process of diagnosis for Netflix. Her most recent book is a collection of her columns and is titled, *Diagnosis: Solving the Most Baffling Medical Mysteries*.