NIH National Institutes of Health
Office of Dietary Supplements
2025–2026 Seminar Series

Microbiome

Wed., May 13 | 11 a.m. – 12 p.m. ET

Please join our panelists, who will discuss "The Microbiome." Registration is required to attend.

Melanie Gareau, Ph.D., is a gastrointestinal physiologist primarily interested in studying the development of the microbiota-gut-brain (MGB) axis. The microbes that live in the gastrointestinal tract, collectively referred to as the intestinal microbiota, can contribute to modulating cognition and mood, however the mechanisms regulating this communication remain poorly defined. The research focus of her laboratory is in determining how manipulating the microbiota within the gut, using models of infection with bacterial pathogens, exposure to environmental chemicals, or administration of antibiotics, can change cognitive function, anxiety, and depression-like behaviors in mouse models of disease including inflammatory bowel disease. Dr. Gareau has a particular interest in how the neuroimmune communication in the gut signals to the brain to maintain the MGB axis. Her work has been supported by multiple NIH and foundation grants.

Minghua Tang, Ph.D., received her Ph.D. in human nutrition and a minor in applied statistics at Purdue University and postdoctoral training at the University of Colorado School of Medicine. Her background is in the prevention and treatment of obesity and its comorbidities across the lifespan. Her current primary research focus is the biological underpinnings of chronic disease prevention early in life and optimizing infant development through nutritional and dietary interventions. Dr. Tang has designed and carried out many clinical trials using semi-controlled or controlled feeding strategies and evaluated the dietary impact on growth, gut microbiota, neurodevelopment, sleep behaviors and risk of overweight in infants and young children. Dr. Tang receives funding from the NIH, USDA and non-profit foundations.

Victor Band, Ph.D., received his B.S. in Biology from Tufts University, and then pursued a Ph.D. in Immunology and Molecular Pathogenesis at Emory University. Here, in the lab of David Weiss, he described an understudied form of antibiotic resistance in clinical isolates known as heteroresistance. This phenomenon occurs when a small clonal subpopulation of microbes have an enhanced level of resistance, which he showed could mediate antibiotic treatment failure and also serve as a target for combination therapy. He then moved to the lab of Yasmine Belkaid at the NIH to pursue a postdoctoral fellowship studying the microbiome and mucosal immunity. He is currently supported by grants from the NIH Office of Dietary Supplements, National Eczema Association and an NIAID career transition award. His research focuses on microbiome-derived gases such as hydrogen sulfide and their role in gut immunity and function. Sulfide production supports mucosal vaccine responses and strengthens resistance to enteric pathogens. Clinical studies show that sulfide-depleting drugs impair mucosal immunity and alter the microbiome in healthy adults. Since sulfide production depends on dietary sulfur, supplementation with sulfur-containing compounds may improve gut health, particularly in populations with low sulfur amino acid intake, including vegetarians, older adults, and protein-malnourished groups.