

Microbes, the Environment, and You

Date: May 21, 2014

Time: 1:00-2:00 p.m. EDT

Please register at: http://bit.ly/PEPH_Microbiome
(registration required)

Description: Our bodies are coated, inside and out, with a vast array of microbes, which outnumber our own cells by a factor of 10 to 1. This collection of microbes is known as the microbiome. Thanks, in part, to the NIH-funded Human Microbiome Project, researchers are learning quite a bit about the normal human microbiome and its functions and how disrupting the microbiome may be associated with disease. Environmental health researchers are becoming interested in the microbiome and how it interacts with our environment. The composition of the microbiome can be influenced by external factors, such as diet, and may also be altered by exposure to environmental chemicals. In addition, the microbiome helps break down some of the chemicals we are exposed to and may influence how we respond to them. This webinar will feature talks from two researchers who are using model systems to investigate how the microbiome responds to environmental exposures, as well as its relationship to environmentally induced disease states.

Microbiota and Obesogens: Environmental Regulators of Fat Storage

John Rawls, Ph.D., Duke University



The incidence of obesity and associated morbidities in the U.S. has markedly increased in recent decades, creating a major public health challenge. Obesity develops when excess energy harvested from dietary nutrients is stored as fat in adipose tissues. However, the rapid pace at which obesity rates have increased suggests that obesity risk is strongly determined by environmental factors. The complex community of

microorganisms residing in the intestine (gut microbiota) has been identified as an environmental factor that promotes adiposity in part by increasing efficiency of dietary nutrient harvest in the intestine. It is also known that exposure to specific environmental toxins (obesogens) can lead to increased adiposity. This webinar will describe recent insights from rodent and zebrafish model systems into the mechanisms by which these environmental factors impact adiposity. An improved understanding of these environmental factors and their underlying mechanisms should lead to novel strategies for reducing obesity and associated co-morbidities.

Running Interference: Physical Activity Impacts the Gut-Brain Axis and Brain Metastasis Induction by Polychlorinated Biphenyls

Michal Toborek, M.D., Ph.D., University of Miami



The influence of the microbiome on the toxicity of environmental pollutants and its role in risk assessment are largely unknown. In addition, there is an emerging interest in the role of behavioral factors in modulating toxicity of environmental pollutants. We investigated the impact of polychlorinated biphenyls (PCBs) and exercise on the composition and structure of the gut microbiome and related these

effects to PCB-induced development of brain metastases. Our results provide the evidence that PCBs induce substantial changes in the gut microbiome, which may influence their systemic and cerebrovascular toxicity. Importantly, these alterations can be attenuated by voluntary exercise.



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PEPH Webinar Series

The Partnerships for Environmental Public Health (PEPH) program established the PEPH Webinar Series to promote interactions among PEPH grantees and to increase awareness of common issues and approaches. The webinars facilitate consideration of emerging issues. While the primary audience is grantees within the PEPH network, anyone interested in environmental public health is welcome to register.

If you have any questions about this webinar, please contact Liam O'Fallon (ofallon@niehs.nih.gov, 919-541-7733).

Individuals with disabilities who need accommodation to participate in this event should contact Liam O'Fallon (ofallon@niehs.nih.gov, 919-541-7733). TTY users should contact the Federal TTY Relay Service at 800-877-8339. Requests should be made at least 5 business days in advance of the event.

Upcoming Webinars

- Environmental Health Literacy (June)