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Friday, April 16, 2021
WebEx
10:30 a.m.– 11:30 a.m.

Avanelle Kirksey Lecture Series together with INP Presents:

Looking into the black box: Applying non-invasive approaches and systems biology to study host-microbe interactions in human infants

The first 1000 days of life is essential for establishing the gut microbiome and programming lifelong health through diet-host-microbe interactions. Human milk is the ideal nutrition for infants, but 60% of infants receive infant formula at some time during the first year of life. My laboratory is interested in understanding how early life nutrition shapes the composition and function of the gut microbiome and its association with short- and long-term health outcomes, including gastrointestinal (GI) development. However, defining how early nutrition regulates GI development in human infants has been limited by the lack of non-invasive approaches suitable for use in healthy human infants. To meet this need, we developed a non-invasive method for assessing intestinal epithelial cell mRNA expression using exfoliated epithelial cells (exfoliome). Using this approach, we have demonstrated that gene expression differs between breastfed and formula-fed infants and between preterm and term infants. Variation in both host mRNA expression and the microbiome phylogenetic and functional profiles was observed between breast- and formula-fed infants. Multivariate statistical analyses was used to examine the interdependent relationship between host epithelial cell gene expression and bacterial metagenomic-based profiles. Gut microbiota metagenome virulence characteristics concurrently varied with immunity-related gene expression in epithelial cells between the formula-fed and the breast-fed infants.



Avanelle Kirksey Lecture Series

Dr. Avanelle Kirksey, a valued faculty member of the Department of Nutrition Science 1961-1994, left a legacy at Purdue University. Her ground breaking research and teaching and community outreach efforts are honored with this lecture series.

Interdepartmental Nutrition Program Seminar

The Interdepartmental Nutrition Program (INP) is structured to offer excellent educational opportunities to qualified graduate students through an integrated approach involving faculty from a variety of departments at Purdue University and other institutions. This seminar series is supported by funds from Interdepartmental Nutrition Program affiliated departments.
For More Information contact: nutrition@purdue.edu

