The WORLD within: gut microbiota, the new player in obesity

Presented by
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Compatriots Hall, HSC, Pomona
Simulcast to Eastmoreland, COMP NW

Lunch will be provided with RSVP to amathieu@westernu.edu (Pomona) or mguerrero@westernu.edu (COMP-NW) by noon Sept. 10.
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Within a very short life span we have become an obese species. Obesity is a complex pathology with no cure in sight. Among the long list of factors contributing to obesity, the link between gut microbiota and energy homeostasis and inflammation and its role in the pathogenesis of obesity-related dysfunctions are increasingly recognized. However, our knowledge of the role of microbiota as it relates to obesity and metabolic diseases is still in infancy. Furthermore, the mechanisms by which gut microbiota interacts with the host to affect the myriad of factors controlling food intake and energy balance are either not known or poorly understood.

Using an animal model that reflects human obesity, this talk will present evidence demonstrating that obesity is associated with a unique aberrant microbial population. This effect is the result of the interaction between the phenotype as well as obesogenic feeding, thus perpetuating obesity. Furthermore, using microbiota transplantation studies with germ-free mice, we show that “obese” gut microbiota can modulate complex molecular signaling machinery responsible for host metabolism, energy storage, intestinal nutrient sensing, and inflammatory pathways in the intestine, adipose tissue, liver, and hypothalamus, ultimately resulting in replication of the obese donor phenotype.

The findings demonstrate the vast and the extraordinary capacity of the gut microbiota to interact with the host at several levels spanning from periphery to the central nervous system. It further suggests that microbial modulation of these pathways using selective, desirable bacterial populations has therapeutic potential to treat obesity.

THE SPEAKER: Dr. Covasa obtained his PhD in Physiology and Nutrition from The University of Leeds, UK and pursued postdoctoral studies in neuroscience at Washington State University. He then joined the faculty at PennState where he received tenure and promotion to Associate Professor. Dr. Covasa was appointed Director of Research at French National Institute for Agricultural Research (INRA), the leading research institute in Europe where he head the Laboratory of Ingestive Behavior. He joined WesternU in 2010. Dr. Covasa has published more than 70 peer-reviewed papers and book chapters and is internationally known for his expertise in the area of control of food intake and regulation of body weight.