

Quantitative, population-level microbiome monitoring - the Flemish Gut Flora project

Alterations in the gut microbiota have been linked to various pathologies, ranging from inflammatory bowel disease and diabetes to cancer. Although large numbers of clinical studies aiming at microbiome-based disease markers are currently being performed, our basic knowledge about the normal variability of the human intestinal microbiota and the factors that determine this still remain limited. Here, I will present a large-scale study of the gut microbiome variation in a geographically confined region (Flanders, Belgium). A cohort of >5000 individuals from the normal population is sampled for microbiome analysis and extensive metadata covering demographic, health- and lifestyle-related parameters is collected. Based on this cohort, a large-scale cross-sectional study of microbiome variability in relation to health as well as parameters associated to microbiome composition is being performed. In this presentation, I will discuss our experiences in large-scale microbiome monitoring, show how the development of dedicated computational approaches can assist in microbiome analysis and interpretation, and which confounders are essential for inclusion in microbiome disease research. In addition I will show how Quantitative Microbiome Profiling (QMP; Vandeputte et al. Nature 2017), which combines microbiomics with flow cytometry-based cell counts, is profoundly changing our view on gut microbiota variation, disease markers and species interaction network prediction.

Monday, November 4, 2019

1:00 PM – 2:00 PM

**Okinawa Institute of Science and
Technology Graduate University (OIST)
Central Building Seminar Room B250**



Chair

Hiroaki Kitano, Ph.D.

President and CEO, Sony Computer Science Laboratories Inc., Tokyo, Japan
Principal investigator, Open Biology Unit, OIST, Okinawa, Japan
President, The Systems Biology Institute, Tokyo, Japan

Speaker

Jeroen Raes, Ph.D.

Professor, Department of Microbiology and Immunology, Rega Institute for Medical Research,
KU Leuven-University of Leuven, Belgium
VIB Group leader, VIB Center for Microbiology, Leuven, Belgium