

“ The importance of the small intestine in health, a role for the microbiota and probiotics ”



Dr. Michiel Kleerebezem



WAGENINGEN UR
For quality of life

*Professor, Host Microbe Interactomics Group,
Wageningen University, The Netherlands*

Date : Jan. 10th (Wed.), 2018

Time : 15:00 – 16:30

Venue : Lecture room No. 1 (Aobayama Commons)

The interest in the human intestinal microbiota has experienced a renaissance during the last decades, which is based on its prominent role in human health and disease. Most of the efforts to study this microbial ecosystem have focused on the faecal microbiota. Contrary to the faecal microbiota, very little is known about the small intestinal microbiota. However, the small intestine and its interaction with diet and microbiota play a pivotal role in immune and metabolic homeostasis, which has been underpinned by mouse conventionalization experiments. Therefore, it is important to characterize the microbiota of the human small intestine and its modulation by diet, and its impact on mucosal and systemic host health.

This presentation will start by illustrating the mouse model studies that highlight the importance of the small intestine in metabolic and immune homeostasis. In addition, it will focus on the characterisation of the composition and function of the human small intestinal microbiota, highlighting novel intelligent sampling capsules for non-invasive sampling in healthy volunteers. Subsequently, it will illustrate how probiotic consumption can drastically modulate this microbial ecosystem, and elicit specific molecular responses in the intestinal mucosa. These responses represent biologically coherent mucosal modulations that are specific for individual probiotic species and strains, which exemplifies the importance of identifying the probiotic effector molecules involved, in order to better understand the mode of action of these functional food ingredients. Finally, the responses to probiotics should be seen in the context of human individuality, which favours the application of probiotics and other functional foods in stratified subpopulations.

(These lectures are included in Class 2(2) of International Food & Agricultural Immunology Lecture, 2017 and are also highly recommended for Master course students)