



Best friends or worst enemies ?

Exploring the interaction between man and his microbiota

26 January 2011 - Olympic Museum - Lausanne

A one-day course organized by the EU-funded large collaborative project TORNADO

8:15 - REGISTRATIONS

8:50 A FEW WORDS OF INTRODUCTION

9:00 - ARJAN NARBAD : Institute of Food Research, Norwich, UK

«The microbiota complexity and how we can modulate its composition»

Gut microbiota plays an essential role in the maintenance of health of both humans and animals. The complexity of the gut bacterial ecology is revealed by the molecular approaches currently used in microbial profiling. The relative influence of host genetics, diet and the environment in shaping the microbiota of humans, pigs and poultry birds will be described.

10:00 - Coffee break



10:20 - FREDERIK BÄCKHED : Göteborg University, Wallenberg Laboratory, Göteborg, Sweden

«Effects of the microbiota on the metabolism. Can bacteria make us obese and diabetic?»

The talk is about germ-free mice (Swiss Webster and C57 background). How to make them germ-free, husbandry, and what they can be used for - emphasis on metabolic diseases.

11:20 - WALTER WAHLI : Center for Integrative Genomics, University of Lausanne, Switzerland

«Nuclear receptors PPARs and energy homeostasis»

Chronic disorders, such as obesity, diabetes, inflammation, non-alcoholic fatty liver disease and atherosclerosis, are related to alterations in lipid and glucose metabolism, in which peroxisome proliferator-activated receptors (PPAR)alpha, PPARbeta/delta and PPARgamma are involved. These receptors form a subgroup of ligand-activated transcription factors that belong to the nuclear hormone receptor family. We will discuss a selection of novel PPAR functions identified during the last few years using mouse models.

12:15 - Lunch





13:45 - PHILIPPE SANSONETTI : Inserm U786, Institut Pasteur, Paris, France
«How the host discriminates symbionts from pathogens»

The topic of the lecture will deal with the differential recognition of bacterial symbionts and pathogens at host mucosal surfaces. Recognizing invading pathogens is vital to mount a sterilizing immune response, but this has to be done in an environment that is already largely populated by symbiotic microorganisms, the «commensals». Recognition of the so called «pathogen-associated molecular patterns (PAMP)» by «pathogen recognition receptors (PRR)» cannot alone account for host discrimination between these two categories of microorganisms. New paradigms are required and the notion of «pathogen-associated danger signal» is taking shape. In this lecture, we will focus on these virulence factors and the danger signals they elicit, thereby illustrating the molecular and cellular bases of this essential discriminative process.

14:45 - SVEN PETERSSON : Karolinska Institutes, Stockholm, Sweden
«Neuromicrobiology emerging : can the microbiota influence brain maturation and behavior?»

The topic of the lecture will deal with the differential recognition of commensal bacteria and how these symbionts can regulate normal developmental programming and consequently normal homeostasis. We will on the one hand put a focus on possible second messengers for microbe induced responses, such as ligand induced transcription factors (PPARgamma and the aryl-hydro-carbon receptor (AhR)) and in the second half the talk we will give a brief overview of our current understanding on how microbes mediate regulation of host barrier functions. The notion that the microbiota is an «undiscovered major organ» playing an important regulatory role in host homeostasis will be discussed.

15:45 - Coffee break



16:00 - NADINE CERF-BENSUSSAN : Université Paris Descartes, site Necker, Paris, France
«Are commensal microbes all alike in their interaction with host immune functions?»

The mammalian intestine is home to a complex community of trillions of bacteria that are engaged in a dynamic interaction with the host immune system. Determining the principles that govern host-microbiota relationships is the focus of intense research. We will discuss how the intestinal microbiota is able to influence the balance between pro-inflammatory and regulatory responses and shape the host's immune system. We suggest that improving our understanding of the intestinal microbiota has therapeutic implications, not only for intestinal immunopathologies but also for systemic immune diseases.

17:00 - 17:30 GENERAL DISCUSSION AND CLOSING REMARKS

