

Transport in the digestive tract : experiments, modeling, applications to microbiology

Workshop that can be attended physically at Sorbonne Université, Paris, or at distance on zoom

22-23 October 2020

At a time when there are more and more studies of gut microbiota, a key aspect of its physical environment, flow in the digestive tract, which will affect the microbiota population dynamics, the interactions between its components and with the epithelial cells, is still far from well characterized. Muscles around the digestive tract contract, performing what is called peristalsis. This has two functions: to move the digesta forward; and to mix it, such that the nutrients can come sufficiently close to the epithelial cells to be effectively transported. This mixing happens both at several length scales. The content of the gut is also a complex fluid, made of food particles, bacteria, mucus produced on the gut walls, etc. In this workshop, we aim at bringing together experimentalists developing techniques to investigate gut transport, modelers, and microbiologists, to gather what is the current knowledge on hydrodynamics in the digestive tract and how this could impact microbiota.

- Karen Alim (Technical University of Munich, Germany) Transport in long slender tubes
- Nicolas Chevalier (Université Paris Diderot, France) Embryogenesis of gut motility
- Agnese Codutti (Technical University of Munich, Germany) Impact of gut motility on nutrient absorption
- Jonas Cremer (Stanford University, USA)
- Sofieke de Jonge (Academic Medical Center, Amsterdam, Netherlands)
- Darka Labavic (Sorbonne Université, France) Modelling evolution of bacteria in the gut: influence of the spatial structure to the fixation probability
- Béatrice Laroche (INRA Jouy-en-Josas, France) A model coupling microbial physiology, spatial heterogeneity and fluid mechanics to investigate factors impacting the microbiota spatial organization in the human colon
- Clément de Loubens (Université Grenoble Alpes, France) Fluid mechanics of the gastrointestinal tract at macro- and micro- scales
- Luca Marciani (University of Nottingham, UK) Novel MRI insights on colonic water, gas and transit
- Asbjørn Mohr Drewes (Aalborg University Hospital, Denmark) New methods for assessment of motility and fluid transport: examples from diabetes and opioid induced bowel dysfunction
- Muriel Murcier-Bonin (INRA Toulouse, France) Mucus in the microbiota/host dialogue in the gastrointestinal tract: a new player in food toxicology and gut health
- Raghuv eer Parthasarathy (Oregon University, USA) & Brandon Schlomann (UC Berkeley) Antibiotics and Aggregation in the Zebrafish Gut
- Nathalie Sauvonnet (Institut Pasteur, Paris, France) Investigating host-pathogen interactions at the tissue level: Impact of mechanical stimulation and 3D topology using organ-on-chip
- and more....

Updated program and more details on

<http://www.normalesup.org/~loverdo/workshop.html>

Free but mandatory registration

