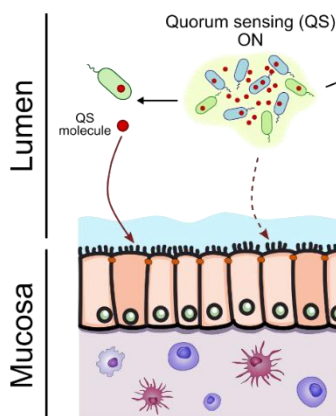


Postdoctoral researcher position: GISMO
Gut microbiome quorum Sensing MOlecules to target inflammatory bowel diseases
CRSA Team : Microbiota Intestine & Inflammation

The position

In the framework of The GISMO project, the Microbiota Intestine & Inflammation (MI2) Team from the Saint-Antoine Research Center (CRSA) in Paris is inviting applications for a 2-year, fully funded postdoctoral position. We are looking for a motivated full-time post doc to work on the impact of bacterial quorum sensing molecules from the intestinal microbiota on the intestinal barrier and its inflammatory pathways.



The scientific context is the gut ecosystem and its implication in inflammatory bowel diseases (IBD). Indeed, the host-microbiota interactions play a crucial role in the pathophysiology of these diseases. Our group is a leader in the description of IBD associated dysbiosis and we decided to investigate metabolites from gut microbiota that could interplay with both the gut microbiota and the host physiology in an interkingdom network. While biological components (such as SCFA, Bile acids, tryptophan derivatives) have been repeatedly described, a largely overlooked component is that of Quorum Sensing (QS), a density-dependent system able to coordinate bacterial responses but also able to interact with host cells constantly exposed to bacteria. We published the first detection of AHLs QS molecules from the human gut and profiled AHLs distribution over a cohort of healthy individuals and IBD patients (Landman et al. PloS One 2018). This led to the identification of the most conserved, abundant and never-described AHL associated to the healthy human gut, 3-oxo-C12:2 AHL, which negatively correlates with IBD and its associated dysbiosis. We showed that 3-oxo-C12:2 is able to maintain tight junctions integrity under inflammatory conditions (Aguanno et al. Tissue Barriers 2020). Moreover, 3-oxo-C12:2 exerted an anti-inflammatory effect on epithelial and immune cells, confirming novel, relevant physiological properties (manuscript in prep). From this starting point, our aims are to decipher the mechanisms of the barrier protection and the anti-inflammatory effects of AHLs. Transcriptomic analysis pointed out several pathways (NFkB, JAK-STAT, TNFalpha, IL-17) that need to be better characterized in this setting.

The research Team MI2 is located in a nice and lively area of Paris and is a very dynamic team of the CRSA composed by about 40 individuals including researchers also implicated in health care (gastroenterologists) and teaching (epithelial cell biologists and microbiologists), post-docs, PhD students, master's students, technicians and engineers. Translational research is available from a database of more than 10.000 IBD patients. Lab's facilities include cell culture expertise, cell imaging, microbiology, tandem and high-resolution mass spectrometry and high-quality technical support.

Project aims

- 1) Deciphering AHL-related inflammation pathways in epithelial and monocyte-macrophages cells and in organoids.
- 2) Puzzle out AHL effect on barrier function by studying regulation of tight/adherens junctions and desmosomes as well as chemical barrier (mucus and antimicrobial peptides secretion) on cell lines and organoids.

Your Profile

The eligible candidate must have obtained his/her Ph. D. degree within 2 years from the starting date of this position (that is, between September 2019 and September 2021). The successful profile will have solid skills in the field of cell biology of epithelial cells, inflammation and innate immunity, and be proficient in oral and written English. We are looking open-minded for candidates interested to work in a multidisciplinary research environment.

Application

We exclusively accept applications via email on the following address:

philippe.seksik@aphp.fr

The applications should be in French or English and include a curriculum vitae with names and contact information of 2 referees, a complete list of publications and a statement of research interest. The applications should be sent as a single PDF file. Applications will be reviewed as they are received until the position is filled.

Employer: Sorbonne-Université

Starting date: ideally 09. 2021

Duration : 24 months

Location: CRSA Saint Antoine Hospital, 27 rue de Chaligny, 75012 Paris, France