



Commensals and Probiotics-Host Interactions Laboratory
Paris Saclay University, Micalis Institute, UMR INRAE-AgroParisTech

POSTDOCTORAL OPPORTUNITY

We are looking for a young PhD laureate to apply to an internal INRAE postdoctoral call (Post-AgreenSkills program, deadline for application: 05/06/2020). The candidate should accomplish with the European rules of mobility (not have been working in France more than 1 year in the last 3 years).

The postdoc position will be a contract up to 24 months and the salary will depend on the candidate's experience.

Host laboratory:

The proposed postdoctoral opportunity will be developed mainly in the Commensal and Probiotics host interactions laboratory located at Micalis Institut in INRAE center of Jouy en Josas.

INRAE is France's new National Research Institute for Agriculture, Food and Environment, created on January 1, 2020 by the merger of INRA, the National Institute for Agricultural Research, and IRSTEA, the National Research Institute of Science and Technology for the Environment and Agriculture.

The Micalis Institute is a mixed research unit associating INRAE, AgroParisTech and Université Paris-Saclay. Its mission is to develop innovative research in the field of microbiology of food for health.

The Micalis Institute merges more than 340 people including 130 scientists, engineers and scientists-teachers, 70 scientific or administrative assistants as well as 140 PhD students, post-doctorant fellows and other students, organized in 21 research teams and 3 thematic axes. The Micalis Institute also hosts 2 technological platforms, a yeast biological resources centre and a gnotobiotic animal facility. In addition, Micalis is also closely associated to the pre-industrial functional and quantitative metagenomics demonstrator Metagenopolis.

Commensals and probiotics host interactions laboratory is composed by around 50 people and headed by Philippe Langella. The main objectives of the Team are:

1. To study intestinal, vaginal, pulmonary and skin ecosystem, in order to identify beneficial effect on host and their mechanism of action
2. To explore immune and physiologic responses to commensals and probiotics in different nutritional contexts
3. To study the interaction between host and intestinal microbiota through diet and supplement with prebiotics and/or symbiotics



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4. To integrate our work to physiology (birth and aging) and human physio-pathology (inflammation, cancer and obesity) in order to tend toward translational research and to propose notably strategies of prevention and therapy

The postdoctoral project will be supervised by Rebeca Martín Rosique. She is focused on studying the vertical microbiota transmission and the effects on the newborn at short and long term. The project will be performed in strong collaboration with Jordi Estellé (GABI, INRAE Jouy-en-Josas; expert on pig's microbiota and weaning) and Mathieu Almeida (Metagenopolis, INRAE Jouy-en-Josas; expert on computational biology applied to metagenome datasets). International collaborations with Patrizia Bridigi (University of Bologna; expert on human microbiota across the lifespan), Francesca Romana Massacci (Istituto Zooprofilattico Sperimentale dell'Umbria e delle Marche 'Togo Rosati; expert on nutritional interventions on pigs) and Yuliaxis Ramayo Caldas (IRTA, Barcelona; expert on data integration) will be also performed.

https://www.micalis.fr/micalis_eng/Poles-and-teams/Pole-Food-and-Digestive-Ecosystems/Interactions-of-Commensal-and-Probiotic-Bacteria-with-the-Host-Phillipe-Langella

Scientific context:

The microbial colonization of mucosal surfaces during the first days of life is key in the development of the newborn. It has been suggested that there is a critical period where disruptions of microbiota-host interactions could irreversibly harm the host priming process, thus hampering the establishment of a healthy homeostasis. The gut microbiota during early life is mainly shaped by the vertical transmission mother-offspring. Thus, weaning is a crucial maternal microbial imprinting process that impacts primocolonisation. Today, there is a trend in the westernized human populations and also in livestock production to advance weaning onset which could impact directly the newborn health. In fact, while it is clear that piglets suffering early weaning are susceptible to post-weaning diarrhea diseases, the consequences on human health due to early weaning are not so well established. During this project, we plan to develop a murine model of early weaning of both human and pig hosts. We will study i) how the vertical microbiota transmission is altered due to early weaning and ii) the microbial functions perturbed by this phenomenon and the consequences on the host. In addition, since microbiota alterations can be transmitted, mice will be followed during several generations. Finally, we will try to restore altered vertical microbiota transmission by a nutritional approach designed in function the current state-of-the-art and the results in the previous steps. This project will suppose a strong proof of concept for the future translation to both humans and pigs health by highlighting potentially useful biomarkers and nutritional approaches for piloting these complex systems.



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Keywords: microbiota, probiotics, murine models, crosstalk, piglets, newborn.

Profile:

Applicants are expected to hold a Ph.D. with expertise in microbiology and/or nutrition science, preferably with experience on microbiota or probiotics analyses. Additional experience in biostatistics/bioinformatics data analyses and/or murine models would be a strong plus. The applicant should have the motivation and enthusiasm to lead the project from fundamental research to application. S/he should be able to work in a multidisciplinary team in collaboration with researchers and engineers in the lab or outside (with other INRAE's laboratories and Italian and Spanish collaborators). S/he will work in collaboration with other team members within the same project and will probably supervise undergraduate and/or graduate students. French spoken is not mandatory but candidates will be encouraged to learn French if necessary.

Application:

Applications including a motivation letter and a comprehensive CV should be sent by e-mail before Mai 5th, 2020 to:

Dr Rebeca Martín Rosique

Commensals and Probiotics-host interaction laboratory. Micalis Institut.
Centre de Recherche INRAE de Jouy-en-Josas

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