

A 3-years PhD Position in Microbiology and Proteomics
available at **Université Paris Saclay, INRAE, Paris area, France**
in the context of **Marie Skłodowska-Curie Innovative Training Networks Action (MSCA)**

PEST-BIN is a MSCA project funded by the European Commission, Horizon 2020 Program. Commencing its activities in January 2021, the Network will provide PhD training to 15 Early Stage Researchers (ESRs).

Consortium objectives

Antibiotic resistance has been named as one of the greatest threats to global health by the World Health Organization. There are increasing numbers of bacterial infections not responding to known antibiotics. The humanity needs to pioneer disruptive technologies to re-gain the upper hand. To do so, PEST-BIN mobilizes six universities, three research institutes, a hospital and five private companies with one common mission: to pioneer novel technologies to fight bacterial infections. Our network will combine very diverse tools: from nano-engineering, antibiotic discovery and production, via proteomics-based diagnostics to big data analysis using artificial intelligence (AI) – all of which will be contribute to new, interdisciplinary technologies. All PEST-BIN ESRs will be trained in an intersectoral environment – experiencing a tight collaboration among academia, healthcare and the private sector.

PhD Project Description

The bacterial pathogen *Listeria monocytogenes* is the etiological agent of listeriosis, one of the most dangerous food-borne diseases. Contamination by *Listeria* is the first cause of food recalls from the market and thus represents an important economic issue. *Listeria* contamination is essentially detected by classical microbiology tests based on enrichment steps, thus relying on the cultivability of bacteria. However, both extracellular and intracellular *Listeria* are able to enter a dormant state called VBNC, characterized by loss of bacterial growth in conventional culturing media. Although undetectable, VBNC bacteria maintain their pathogenic potential, thus representing a risk for human and animal health. Here, by applying cutting edge techniques (RNA sequencing and quantitative proteomics), we aim at defining the physiological markers of VBNC *Listeria* and provide fundamental knowledge on asymptomatic bacterial infections. This One Health project also aims at developing tools to detect silent VBNC *Listeria* in food, human and animal samples. We are seeking a doctoral candidate with great interest for host-pathogen interactions. The project is at the interface of two teams, PAPPISO (<http://pappiso.inra.fr>) and EPIMIC (https://www.micalis.fr/micalis_eng/Poles-and-teams/Pole-Bacterial-Adaptation-and-Pathogenesis/Epigenetics-and-Cellular-Microbiology-Helene-Bierne) of the MICALIS institute (Jouy en Josas, Paris area). The student will use microbiology, molecular and cell biology techniques in the EPIMIC team, and high-resolution mass spectrometry in the PAPPISO platform.

Required competences

- Microbiology, Biochemistry, Molecular Biology
- Skills in Bioinformatics and notions of Proteomics would be an asset
- Team spirit; enthusiasm in doing research in multidisciplinary environments and at the interface of two teams
- Applicants must be able to demonstrate their ability to understand and express themselves in both written and spoken English at a level that is sufficiently high for them to derive the full benefit from the network training.

Benefits and salary

The successful candidates will receive an attractive salary in accordance with the MSCA regulations for Early Stage Researchers (<http://ec.europa.eu/research/mariecurieactions/>). The exact salary will be confirmed upon appointment and is dependent on the country correction factor (to allow for the difference in cost of living in different EU Member States). The salary includes a living allowance, a mobility allowance and a family allowance (if already married). The guaranteed PhD funding is for 36 months. All ESRs will have a personal career development plan and benefit from continuing education, secondments and training/networking events within PEST-BIN. All ESR will be guided by an academic and non-academic supervisor, experiencing a truly intersectoral working environment.

Eligibility

Applicants can be of any nationality. PEST-BIN supports a balanced gender representation by promoting genuine equal access opportunities throughout the recruitment process. Applicants are required to undertake transnational mobility (i.e. move from one country to another) when taking up their appointment. At the time of recruitment by the host beneficiary, ESRs must not have resided or carried out their main activity (work, studies, etc.) in the country of their host beneficiary for more than 12 months in the 3 years immediately prior to the date of appointment. Before their employment starts, applicants must have (or obtain) a diploma granting access to PhD studies (typically a MSc degree).

Documents for application

Please submit your application in English, including a cover letter describing your motivations, a *curriculum vitae* with ID photo, and two reference letters.

Applications should be sent **before January 10, 2020** by email to: helene.bierne@inrae.fr and celine.henry@inrae.fr