**Early Stage Researchers Ph.D. positions**

**Closing Date for Applications:** 31th May 2015  
**Localization:** Department of Agroecology  
Université de Bourgogne, Dijon, France  
**Contract Type:** Fixed Term Whole-Time  
**Job Type:** Research  
**Number of positions:** 2  
**Salary:** €48,944 per annum + 10200 mobility allowance per annum

**Position Summary.**

Two PhD positions are available for Early Stage Researchers within a Horizon 2020 EU-funded Marie Sklodowska Curie European Training Network. One will be located at the research unit UMR Agroecology, Université de Bourgogne, Dijon, France and the other in a joint supervision between the Université de Bourgogne and the National University of Ireland, Galway. The project involves multiple international academic and private participants, and seeks to develop a better understanding of the ecology of *Listeria monocytogenes* through a systems biology approach. In accordance with the rules of this programme, candidates for the first position must not have worked or studied more than 12 months in France within the last 3 years and for the second PhD position they must not have worked and studied more than 12 months in France and in Ireland. Interested candidates must hold the qualification required to engage in a Ph.D. program, with significant experience in microbiology, microbial ecology and/or transcriptomics. Experience of working with plant/soil microcosms would be an advantage.

**Post Duration:** 36 months (for the second PhD 18 months in France and 18 months in Ireland)

**Ph.D Early Stage Researcher**

This is an early stage researcher training role where you will conduct a specified programme of research and research training under the guidance of a Principal Investigator. The primary purpose of the role is to deliver research results and objectives, develop new or advanced research skills and competences, and develop complementary skills and competences through network-wide and specific training events. The Ph.D programme has an expected duration of 36 months on a full-time basis.  Applicants must be in the first 4 years (full-time equivalent) of their research activity, including their research training. Applicants should hold a good honours undergraduate or Masters degree in the field of Microbiology, Microbial ecology or other appropriate disciplines.

**Key duties and responsibilities**

* To run experiments in a specified programme of research under the supervision and direction of a Principal Investigator/Project Leader.
* To engage in appropriate and professional development opportunities as organised in the ETN training program
* To follow secondments in participants labs to perform specific experiments
* To support the Principal Investigator and research group in the design and development of a research programme.
* To engage in the dissemination of the results of the research, as directed by and with the support of and under the supervision of the Principal Investigator.
* To carry out any additional duties as may reasonably be required within the general scope and level of the post

**Project 1: Investigation of the adaptive strategies of L.Monocytogenes in soil/plants mesocosms**

**Objectives:** Project 1 will focus on adaptation of *L. monocytogenes* EGD-e to soil and plant rhizosphere. Transcriptomes during adaptation to the soil and to plant rhizosphere will be compared. Similarly, transcriptomes will be compared in the presence and absence of microbial community (soil versus g-irradiated soil). We will identify putative regulated proteins (proteomic). Mutagenesis will be implemented on selected targets in order to explore the mechanisms involved in the sensing of the environment and to characterise the phenotype of the deletion mutants in the defined environments.

**Expected Results:** Global transcriptomic response during adaptation to soil and plant roots. Characterisation of the response to soil microbiote. Determination of TSS. Identification of proteins critical for survival in this habitat. Evaluation of the role of the soil biotic environment on the behaviour of *L. monocytogenes*

**Project 2:** **Investigation of interconnections between AgrA and σB regulons**

**Objectives:** The objective of this project under the joint supervision of UB and NUIG is to investigate the crosstalk between cell communication (mediated by AgrA) and stress response (mainly mediated by σB). The role of AgrA and σB have been studied for several years by UB and NUIG respectively. Recent evidence suggests that these regulators may interact in a way not previously expected. This project will investigate the crosstalk between these two regulators. Reporter strains will be constructed that allow the activities of the two regulators to be monitored by recording cellular fluorescence, either in the presence or absence of the other regulator. Using a combination of flow cytometry and fluorescence microscopy, the activities of these important regulators will be measured in both planktonic cells and in biofilm. Mutants of a selection of target genes will be constructed and their phenotypes will be assessed under specific environmental conditions such as survival in soil and rhizosphere.

**Expected Results:** Understanding of the cellular integration of biotic stimuli and harsh conditions. Hierarchy of the cell response under specific environmental conditions.

# Eligible criteria of Marie Sklodowska Curie actions:

* Researchers may be of **any nationality**
* Candidates shall at the time of recruitment by the host organization, **be in the first four years** (full-time equivalent research experience) **of their research careers.** Full-time equivalent research experience is measured from the date when a researcher obtained the degree which would formally entitle him or her to embark on a doctorate, either in the country in which the degree was obtained or in the country in which the researcher is recruited or seconded, irrespective of whether or not a doctorate is or was ever envisaged.
* Candidates must **not have a doctoral degree**
* Mobility rules: candidates shall **not have resided or carried out their main activity** (work, studies) **in France for more than 12 months in the 3 years** immediately **prior their recruitment**. **For the second project**, candidates shall **not have resided or carried out their main activity in France and in Ireland** **for more than 12 months in the 3 years prior the recruitment.**

**Criteria**

* Academic ability
* Scientific skills and competences
* Labwork experience
* Level of independence
* Proficiency in foreign languages
* Other experiences

**For Informal Enquiries on the post candidates should contact:**

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**To apply:**

1st PhD: Applications by email to Dr. Pascal PIVETEAU [piveteau@u-bourgogne.fr](mailto:piveteau@u-bourgogne.fr)

2nd PhD: Applications by email to Dr. Pascal PIVETEAU: [piveteau@u-bourgogne.fr](mailto:piveteau@u-bourgogne.fr) and Dr. Conor O’BYRNE: [conor.obyrne@nuigalway.ie](mailto:conor.obyrne@nuigalway.ie)

Include “List\_MAPS PhD application” in the subject line. Applications must include in PDF only:

1. Cover letter
2. Curriculum vitae
3. Transcript of results of the last 3 years of University studies (including modules and courses)
4. One reference letter