MuSkLE
PhD programme
Building, maintaining and repairing the functional locomotor system

Co-funded by the European Union

PhD Position 15 job vacancy

Reference:	**PP15**
Title:	**Development of an artificial gut bioreactor for the assessment of human gut microbiota metabolic output**
Hiring institution:	**UJM**
Location:	Jean Monnet University, Saint Etienne, France
Start date:	As from 1st September 2027
Duration:	36 months
Application deadline:	15th January 2027

Job description

Objective:	**The recruited doctoral fellow (DF15)** will develop the biological aspects of a project developing a gut bioreactor prototype in collaboration with engineers from the Ecole des Mines at St-Etienne. To study the effect of change in the human gut microbiota (dysbiosis) involved in many diseases or the effect of dietary changes (notably life-style modification and diet interventions), onto the composition and metabolic output of food digestion, our team has designed an artificial bioreactor reproducing the 3 gut compartments and allowing to study dynamic changes in gut microbiota repertoire and metabolic output. The project will have several objectives, 1st contributing to the final stages of the prototype optimisation and scaling-up, developing protocols for the engraftment and the stabilisation of human microbiota samples (from faecal samples). A second objective will be the description of dysbiosis related changes in both repertoire and metabolic output from various groups of patients notably in relation with the risk of developing rheumatoid arthritis where dysbiosis have been documented to occur during preclinical disease. Finally, the development of proof of concept that change is dietary habit can reshape the microbiota repertoire and metabolic output will be investigated towards suggesting personalised approaches to the prevention of progression to disease. Microbiota repertoire analysis will be using 16S-RNA sequencing and metabolic output will use mass-spectrography for a discovery approach and biochemistry assays for specific candidate quantification. Link with projects investigating the effect of candidate metabolites will be possible notably for the immune-modulatory properties of such metabolites. The project will also include contribution to a business plan for the commercial exploitation of the prototype.
Collaborations and co-supervisions:	Collaboration with Ecole des Mines (Saint-Etienne, France).
Supervisors:	Main supervisor: Pr. Frédérique Ponchel - frederique.ponchel@univ-st-etienne.fr in collaboration with Pr. David Eglin, Ecole des Mines / UJM.
Place of work:	**Faculté de Santé -** Campus Santé Innovations - 10 rue de la Marandière 42270 Saint-Priest-en-Jarez, France

Required degree	Master's degree or equivalent in cell biology, microbiogy
Skills/Experience:	Mandatory • Cell biology • Microbiology • Basic biochemistry assay Desirable • Bioinformatics -Omics and 16S RNA sequencing
Keywords	Gut microbiota, dysbiosis, metabolic output, inflammation

Mandatory requirements

Eligibility:	The doctoral fellow: - should not have resided or carried out his/her main activity (work, study) in the country where he/she is being recruited, i.e., France, **for more than 12 months in the 3 years before the application call deadline,** unless this time was part of a compulsory national service or a procedure for obtaining refugee status under the Geneva Convention. - **must be in possession of a master's degree** at the date of the call deadline. Applicants who have completed their cursus but not yet been awarded the formal master's degree by that date will not be considered eligible. - must be **a doctoral candidate** (not already in possession of a doctoral degree at the date of the application call deadline).
Languages:	Oral and written skills must meet the standards of academic English used in international research.

Job details

Type of contract:	Full time position
Gross salary:	The monthly living allowance, including employer and employees' social charges, is €3,500. This amount corresponds to a gross monthly salary estimated to €2,472 and to an estimated net monthly salary before income tax of €1,985.68. In addition to the salary, the doctoral researcher will receive a **mobility allowance corresponding to a total employment cost of €132 per month** (€4752 over 36 months), including employer and employees' social charges to support relocation and mobility-related expenses.
Other benefits:	**Social Protection**: The doctoral researcher will benefit from **full social security coverage**, including health insurance, unemployment insurance, and pension contributions. They will also have access to occupational health services (*médecine du travail*), in accordance with the French public-sector employment framework. **Additional Insurance**: The doctoral researcher will benefit from an employer contribution of **€37.50 per month** towards complementary health insurance, in accordance with the applicable public-sector scheme. **Paid Leave**: The doctoral researcher is entitled to **49 days of paid leave annually** (for 38.5 hours worked per week), in accordance with UJM's working time arrangement, and will enjoy the same employment rights as other public-sector employees. **Relocation assistance**: Through its **EURAXESS Service Centre**, UJM provides dedicated support to international doctoral researchers before and during their stay in Saint-Étienne. Assistance includes visa and residence permit procedures, accommodation guidance, healthcare and administrative formalities, as well as practical advice on settling into France. International researchers and their families can also benefit from integration support and information on French language courses. More information: https://www.univ-st-etienne.fr/fr/international/enseignant-chercheur-post-doctorant-doctorant.html **Transport**: The University reimburses **75% of eligible public transport season-ticket costs** for commuting between home and work, up to a monthly ceiling of **€104.04**, in accordance with current French public-sector regulations. **Sports and culture**: UJM offers a vibrant campus environment and a wide range of sports and cultural activities. Doctoral researchers can access activities offered by the University's Sports Department (SUAPS), including fitness, team sports and well-being activities, subject to applicable registration conditions. The University also organises a rich cultural programme throughout the year, featuring concerts, theatre performances, exhibitions and creative workshops, many of which are free or offered at reduced rates.