

## We are recruiting for one year an Engineer with expertise in peptide biochemistry and microbiology

### Job Profile

### Offer description

#### Project and job description

We are seeking a highly motivated and talented young researcher to join our research team. The selected candidate will work on proteomics research projects related to innate immunity in invertebrate organisms and their defense reactions when exposed to pathogens including viruses or other stressors.

In the first part of the contract, you will have to work on a part of the project focusing on an antimicrobial peptide (AMP) produced by a marine organism, and its ability to stay active in high-salt conditions. The project will contribute significantly to the knowledge on the mechanisms of AMPs active both at normal and high salt concentrations, and their therapeutic applications. Indeed, our goal is to turn salt-sensitive human AMPs into salt-stable AMPs, in the context of the urgent need in human medicine of alternatives to conventional antibiotics treatments. As a summary on this part of your contract, you will apply your expertise to **(i)** identify bacteria isolated from the organism's microbiome, by using the MALDI-BioTyper technology, **(ii)** quantify the AMP stability in biological fluids by mass spectrometry analysis, and the AMP fragments remaining after interaction with microorganisms (binding experiments) by HPLC analysis, **(iii)** evaluate the molecular composition of a nanonet structure generated between bacteria and the AMP by SDS-PAGE and proteomics analysis, **(iv)** in coordination with the other partners of the project, monitor the AMP localization in tissues samples by mass spectrometry, and finally **(v)** apply similar analyses to engineered chimeric AMPs to assess any change to localization, stability and cytotoxicity.

The second part of your contract will be focused on the immune response of pollinators with a priority on solitary bees subjected to different biotic and abiotic stressors. Your tasks will be to acquire by MALDI mass spectrometry and compare the molecular profiles of the pollinators' hemolymph samples collected in different stress conditions, to search by differential proteomics analyses (nanoLC-ESI-MS/MS and MALDI MS) the immuno proteome and other peptides/proteins which could be potential biomarkers of the pollinator's exposure stressors. You will have to contribute to the identification of altered pathways in response to stressors and to integrate your results into a database merging information gained from honeybee, bumble bee and solitary bees in order to have an exhaustive data base on the responses of pollinators to a series of stressors.

#### Environment

The applicant will work under the scientific supervision of Dr [Philippe Bulet \(Research Director at CR UGA, IAB, INSERM U1209 CNRS UMR 5309\)](#) assisted by Dr Sébastien Voisin (Project manager specialized in Mass spectrometry at BioPark laboratory). She/He will benefit from a dynamic and stimulating scientific environment at the [Plateforme BioPark of Archamps](#), where private and public research are developed.

#### Selection process

Application files can be submitted until end of 2021. Following that first selection, interviews of selected candidates will be conducted online.



### Researcher Profiles & Fields

We are looking for a Young Researcher (with less than 3 years research experience after PhD) in the Research Field of Biological Sciences and Microbiology with some previous experience in protein sample preparation and analysis, strong organizational skills, the ability to work independently but always keeping in mind a team spirit, and good communication skills. Knowledge in antimicrobial peptides, proteomics bioinformatic tools and invertebrate immunity would be an added value.

Associated activities such as Life in laboratory, Scientific exchanges and Experience in writing scientific publications for peer-reviewed journals would be an asset. Required Languages: French (good or excellent) and English (good or excellent oral and writing).

**Keywords:** antimicrobial peptides, innate immunity, proteomics, mass spectrometry, marine invertebrate, pollinators.

### Hosting Laboratory

You will work in the following address: [Plateforme BioPark of Archamps](#), 260 avenue Marie Curie, Archparc, 74160 Archamps (France).

### Contract

This is a one-year temporary contract with a salary determined according to the INSERM pay grid. The salary will come from the ANR-MosarDef and from the European PoshBee project.

### Application

Applicant must send a CV, recommendation(s) letter(s), and a Cover letter to Dr Philippe BULET (+33(0)612777819 or +33(0)450432521) at [philippe.bulet@univ-grenoble-alpes.fr](mailto:philippe.bulet@univ-grenoble-alpes.fr).