



EHESP – School of Public Health

Post-doctoral position in bioinformatics applied to HRMS exposomics

Department of Environmental Health Sciences

Position based in Rennes (France)

Category A

1) Institution

EHESP-School of Public Health is a scientific, cultural and professional public institution. EHESP is a member of the network of public service schools (RESP), France Universities and the conference of Grandes écoles (CGE).

EHESP is also a component institution of the University of Rennes (Public Experimental Institution, "EPE").

As a platform for teaching and research in public health, EHESP is structured in departments (human and social sciences / management institute / quantitative methods in public health / environmental health sciences) integrated into an interdisciplinary project including certified research centers. EHESP offers training courses for senior managers for civil service, national master's degree, specialized master's degrees, doctoral program and a very rich offer of lifelong learning.

EHESP welcomes 1,300 students or doctoral students and 7,000 trainees in professional development from 50 different nationalities and invites more than 1,000 lecturers per year.

Website: www.ehesp.fr —Twitter feed: @ehesp

2) Departement

This position is in the Department of Environmental Health Sciences and is attached to the the Environment and Health Research Laboratory (Leres), one of the analytical platforms of the Research Institute for Environmental and Occupational Health (<https://www.irset.org/en>) (Irset-Inserm UMR 1085). Irset is one of Europe's leading exposomics research centres performing innovative research in genomics, transcriptomics, analytical chemistry, toxicology, exposure science, epidemiology and risk assessment. The Leres facility is fully equipped with innovative mass spectrometry instruments (MS/MS and HRMS) to assess human exposure to inorganic and organic mixtures.

3) Research Field

Researcher profile: We seek a highly motivated and enthusiastic candidate with a PhD in the area of informatics / bioinformatics applied to omics sciences such as HRMS exposomics, metabolomics or proteomics, with experience and demonstrated success of working independently and as part of a team. Essential skills for this job include experience in informatics/bioinformatics, experience in developing user-friendly tools and algorithms to answer challenges associated to mass spectrometry data processing, quantification and/or annotation, program coding skills (R, python, C++). Desirable experience includes skills in HRMS software (e.g., XCMS, MS-DIAL) for data pre-treatment and marker annotation.

Research field:

This position is part of the European Partnership for the Assessment of Risks from Chemicals (#EU_PARC). This major project includes 200 partners from 28 EU countries: national agencies and

research organisations working in the areas of the environment or public health, the European Chemical Agency (ECHA), the European Food Safety Authority (EFSA) and the European Environment Agency (EEA) The aim is to develop the next-generation chemical risk assessment in order to protect health and the environment.

The postdoc will work on a sub-project aiming to develop a comprehensive and user-friendly automated pipeline for suspect (SS) and non-targeted screening (NTS) data processing using liquid chromatography coupled to high-resolution mass spectrometry (LC-HRMS) datasets. More specifically, the postdoc will work on developing a more integrated and common computational tool for pre-processing of HRMS data and features annotation, e.g., inspired from the Workflow for Metabolomics W4M/Galaxy user friendly environment.

Years of research experience: 0-3 years after PhD

4) Activities

We are offering an exciting postdoctoral position at EHESP, which has already developed analytical methods based on UHPLC-ESI-QTOF to detect a wide range of low levels of chemicals in complex biological matrices (e.g., blood, urine and tissues), and an open access pre-annotation workflow (<https://github.com/scannotation>) to speed-up the annotation of complex HRMS datasets. The postdoc will work on developing a more integrated and common computational tool for annotation, e.g., inspired from the Workflow for Metabolomics W4M/Galaxy user friendly environment.

5) Qualifications and skills required

Education level / Professional experience :

- PhD in informatics / bioinformatics
- PhD in HRMS chemical exposomics or other omics related fields

Skills :

- Development of user-friendly tools and algorithms to answer challenges associated to mass spectrometry data processing, quantification and/or annotation
- program coding skills (R, python and other languages), skills in C++ would be beneficial
- Expertise in HRMS software (e.g., XCMS, MS-DIAL) for data pre-treatment, statistical analyses and marker annotation.
- Project management
- Communication
- Autonomy

- **Required languages and level expected: English and French**

6) Additional information

Location: EHESP (Rennes, France)

Full-time for 24 months

Cover letter and detailed resume to be sent by e-mail: arthur.david@ehesp.fr, sarah.lennon@univ-rennes.fr

Application deadline: 31 January 2024

How to apply (website or email) / email: arthur.david@ehesp.fr, sarah.lennon@univ-rennes.fr

Offer starting date: 01 March 2024

**Is the job funded through the EU Research Framework Programme? Reference number? Yes, PARC
Grant agreement ID: 101057014**

Science4refugees? no

Is the job related to staff position within a research infrastructure? Yes (France Exposome)

Eligibility criteria: PhD in informatics / bioinformatics

Selection process: interview after shortlisting of candidates

Information about the position :

Numéro de téléphone

arthur.david@ehesp.fr, sarah.lennon@univ-rennes.fr