



Postdoctoral Researcher position in HRMS-based exposomics at the Research Institute for Environmental and Occupational Health

Leres, French School of Public Health of Rennes (France)
Contract: short-term contract (2 years renewable 1 year)
Closing date: 4th January 2021

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

Description of the position

This position is part of a large project funded by the French Fondation for the Medical Research (FRM) aiming at using modern exposome methods based on high-resolution mass spectrometry (HRMS) to investigate the environmental etiology of age-related chronic diseases. We hypothesize that exposure to complex chemical mixtures (the chemical exposome) holds etiological clues to accelerated brain aging and related diseases. The project will leverage the Three-City (3C) study, a long-term French population-based cohort that uniquely benefits from repeated blood biobanking over 10 years, ascertainment of multiple external exposures and biological markers, and >17 years of follow-up for brain health outcomes. The aims of the project are to use an analytical workflow based on LC-ESI-HRMS and GC-MS/MS to constitute a large prospective database of the blood chemical exposome in an older population and to establish the proof of concept of an association between the chemical exposome and brain aging.

We are offering an exciting postdoctoral position at the Leres facility, 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 (eg, blood), and an in-house automatized pre-annotation workflow to speed-up the annotation of complex HRMS datasets. The selected candidate will process the blood samples (n>500) using UHPLC-ESI-QTOF methods in order to capture a wide range of exogenous organic chemicals accumulated in the older population. The candidate will then apply state-of-the-art bio-informatics methods based on multivariate analyses and suspect screening in order to annotate complex HRMS datasets. The candidate will then work in close collaboration with epidemiologists for etiological research.

Qualifications

We seek a highly motivated and enthusiastic candidate with a PhD in the area of HRMS-based exposomics, metabolomics, or analytical chemistry with experience and demonstrated success of

working independently and as part of a team in analytical or academic research facility. Essential skills for this job include experience in biological sample preparation techniques, strong practical expertise in liquid chromatographic methods, LC-HRMS based metabolomics and experience in metabolomics software (e.g., XCMS, MS-DIAL) for data pre-treatment, statistical analyses and marker annotation.

The position will include close collaborations with epidemiologists (Cécilia Samieri) from INSERM U 1219 - BPH : BORDEAUX POPULATION HEALTH RESEARCH CENTER.

The successful candidate is expected to start in April 2021. The closing date for applications is 4th January 2021. Please submit a single PDF containing your current curriculum vitae (including list of publications), contact information for three professional references, and a cover letter describing your interest in the position and how your qualifications meet the criteria outlined above to Dr Arthur David (arthur.david@ehesp.fr). Interested applicants can email Dr Arthur David for further information.