

INSTITUT DE RECHERCHE EN SANTÉ, ENVIRONNEMENT ET TRAVAIL
Irset-Inserm UMR 1085 | 2 avenue du Prof. Léon Bernard | 35043 RENNES | France

Postdoctoral Researcher

Impact of polycyclic aromatic hydrocarbons on extracellular vesicles-mediated delivery of microRNAs from human blood circulating cells – study of paracrine effects to endothelial and hepatic cells

Job profile

Position: Postdoctoral Researcher

Missions: The postdoctoral researcher will mimic *in vitro* the interaction of extracellular vesicles (EV) derived from primary human circulating blood cells with host cells such as endothelial and hepatic cells, and will characterize the impact of polycyclic aromatic hydrocarbons (PAHs) on secreted EV-associated microRNAs (miRNAs) in order to examine their contribution to paracrine effects on recipient cells. The aims of the project will be to: (i) determine the impacts of PAHs on EV production and EV-derived miRNA profiles in human peripheral blood mononuclear cells already shown to secrete EVs for intercellular communication (Beer et al., 2015; Wagner et al., 2018), and previously reported to be targeted by PAHs (Sparfel, 2010; Liamin, 2017; 2018) ; (ii) study their contribution on the functions of endothelial and hepatic cells, previously shown to be also targeted by PAHs (Van Meteren et al., 2019; Le Goff et al., 2019). These studies on EVs, that are present in biological fluids and known to play major roles in intercellular crosstalk, will provide innovative elements on the molecular and cellular mechanisms of toxicity of PAHs, and could help identifying new biomarkers, *i.e.* miRNAs, of exposure and toxicity for these contaminants, potentially interesting for future epidemiological studies.

Main activities: The research activity will take place in the team 3 of IRSET UMR INSERM 1085 at the University of Rennes 1 under the supervision of Professor Lydie SPARFEL and Dr Eric LE FERREC. It will use basic cellular and molecular biology techniques (cell culture, RT-qPCR, protein analysis, study of cell death....) and adapted assays to characterize EV amounts and size distribution (nanoparticle tracking analysis [NTA], electron microscopy, flow cytometry...). The postdoctoral researcher will execute experiments and acquire, analyze and interpret the data; he/she will also be in charge of a rigorous review of existing literature. The position requires data presentation and participation at laboratory meetings, seminars and conferences and sound verbal and written communication skills in English are expected.

Knowledge: We seek PhD graduates in toxicology and/or cellular and molecular biology.

Known-How: Essential skill is required in cell cultures, and technical skill in molecular biology (RNA extraction and RT-qPCR), proteomics (Western blot, ELISA, flow cytometry...), cell death analysis .

Abilities: The ideal candidate is one with a strong background in life sciences who is interested in environmental toxicology. A demonstrated ability to conduct challenging and innovative work will be appreciated. Excellent communication and writing skills are desirable.

Requested experience: Previous postdoctoral experience is not necessary but this postdoctoral research position is available for a highly motivated and autonomous candidate.

Requested qualification: A doctoral degree from an accredited institution is necessary and previous experience in molecular and cellular Toxicology will be appreciated.

Hosting Unit:

Unit Code: U1085

Unit Name: Irset, Institut de recherche en santé, environnement et travail / Research Institute for Environmental and Occupational Health.

Unit Director: Michel SAMSON

Unit Composition: Irset is one of the largest inter- and multi-disciplinary European research centers on environmental and occupational health. Irset includes around 300 research people working in two divisions: Research and Research Support. The Research division comprises 10 officially-accredited research teams, and 2 certified R&D platforms. The position will take place in the team 3 SMS "Stress, Membrane, Signalling" whose research focuses on the impact of diverse chemical contaminants on the intracellular signaling and intercellular communication underlying the related phenotypic cell responses. The SMS team is localized on the "Health Campus" (Faculty of Pharmacy) of the Université de Rennes 1 (building 5).

Address: 9 avenue du Pr Léon Bernard 35000 RENNES

Regional Delegation: Grand Ouest

Contract

Type: Fixed-term contract (CDD)

Duration: 2 years

Salary: The salary will depend on qualifications and previous training.

Requested Start Date: September 2020

Application



Please email your detailed CV, including a complete list of your publications, a cover letter of motivation explaining your interest for the chosen position, a short statement on career planning, and 2 letters of references to Professor Lydie SPARFEL (lydie.sparfel@univ-rennes1.fr) before June 1, 2020.

Contact for further information: lydie.sparfel@univ-rennes1.fr

