

# **PhD position in Toxicology for a FRM project: Exposure to polycyclic aromatic hydrocarbons and steatohepatitis, role of extracellular vesicles.**

**Location :** Team SMS (Stress Membrane Signalling) headed by Dominique Lagadic-Gossmann at Irset Umr Inserm 1085 (<https://www.irset.org>), Rennes, France. Research by the SMS team deals with the membrane stress induced by environmental contaminants and with the related consequences in terms of cell responses (cell death and survival, metabolic reprogramming, communication via extracellular vesicles...), in connection with the development of diverse pathologies (cancers, metabolic diseases of liver).

**Funding :**

Foundation for Medical Research (FRM) for up to 36 months.

Starting date : 7<sup>th</sup> of February 2022.

**Co-supervisors :** Odile Sergent and Dominique Lagadic-Gossmann.

**Description of the position :**

Recent evidences indicate the key role of various environmental pollutants in the pathological progression of steatosis (fatty liver) toward steatohepatitis. Among those contaminants, polycyclic aromatic hydrocarbons (PAHs) are worth studying because strongly represented notably in residential sectors. Our team has described the ability of PAH to increase the release of extracellular vesicles (EVs) by hepatocytes and endothelial cells, and also to modify their content. In addition, EVs from PAH-treated non steatotic hepatocytes are also able to trigger oxidative stress and death of healthy hepatocytes. The PhD candidate will therefore analyze the role of EVs in the progression of hepatic steatosis to severe forms upon PAH exposure. The main objectives of the thesis will be to study, both in vivo (high fat diet [HFD] rats) and in vitro (hepatocyte cultures), hepatotoxicity of PAHs under conditions of lipid overload (steatosis), EV release and to determine the potential liver damage induced by EVs in non-HFD, healthy rats or non-steatotic hepatocytes. The PhD student will benefit of the network of teams involved in this FRM project, especially for the rat experiences and omics needed for the EV characterization.

**Training and experience of the Ph candidate:**

Master's degree in Health Biology, Cellular and Molecular Biology, Toxicology or related discipline. Essential skills for this job include experience in culture of eukaryotic cells, western-blot, fluorescence microscopy and spectrofluorimetry. Experience in extracellular vesicles, oxidative stress and/or cellular toxicology would be of great value.

**Application :**

Send application before **the 15<sup>th</sup> of December 2021** in a single pdf file including CV, motivation letter, Bachelor and Master transcripts to Professor Odile Sergent ([osergent@univ-rennes1.fr](mailto:osergent@univ-rennes1.fr)).