

Postdoctoral position in Environmental Sciences

Starting period: November-December 2018

Duration: 1 to 3 years

Scientific background/project

Mercury (Hg) is a persistent pollutant in the environment, highly volatile and able to be converted into highly toxic methylmercury (MeHg). MeHg is a serious threat as it is a neurotoxic compound, which is bioaccumulated and bioamplified in food webs. Microorganisms play a central role in MeHg conversion, but little is known about the cellular and environmental mechanisms favoring MeHg production. Although *hgcA* and *hgcB* genes have been identified as necessary for Hg methylation in some bacteria, the methylation process cannot be fully explained.

Our general project (GO-BEAM project: Go inside a bacterial cell methylating Mercury) focuses on the characterization of Hg methylation at the cellular level, from Hg recognition by the cell to Hg export, including methylation steps. We apply an interdisciplinary approach combining genetics, analytical chemistry based on mass spectrometry, and state-of-the art imaging and X-ray absorption spectroscopy to decipher the cascade of events leading to Hg methylation. The post-doctoral fellow will be involved in the project and will implement electron and synchrotron X-ray techniques including imaging and X-ray absorption spectroscopy techniques to localize Hg at the cell level and determine its speciation. She/he will design and operate synthesis of Hg model compounds based on speciation models.

Working conditions

Laboratory: IPREM, Université de Pau et des Pays de l'Adour & CNRS, Hélioparc, 2 Av. P. Angot, 64053 Pau cedex, France

Gross salary: 2919 €/month (including 64 h of teaching per year)

Funding: The post-doc is funded by the project GO-BEAM from E2S-UPPA (Energy Environment Solutions, <https://e2s-uppa.eu/en/index.html>). GO-BEAM was selected as 'Key Scientific Challenges E2S-UPPA' and is a collaborative and transdisciplinary project involving genetic microbiology, analytical chemistry, imaging and spectroscopy. The objective of the project is to improve the understanding of the Hg methylation/demethylation processes at the cell level. 2 PhDs and 1 Post-Doctorate will work on the GO-BEAM project: PhD1 in analytical chemistry and imaging, PhD2 in genetics and physiology and the Post-Doc (the present proposition) on both imaging and spectroscopy. PhD1, PhD2 and Post-Doc will strongly interact.

Scientific team: MP Isaure (PI of the GO-BEAM project), M Goñi-Urriza, M Monperrus, B Khalfaoui-Hassani, R Guyoneaud, C. Gassie, 2 PhD students, 1 post-doc

Supervision and contact

The post-doc will be supervised by Marie-Pierre Isaure, Iprem (<http://misaure.perso.univ-pau.fr>) and will work in close collaboration with the scientific team of the GO-BEAM projet.

For additional information, please contact Marie-Pierre Isaure by e-mail or phone.

Contact: marie-pierre.isaure@univ-pau.fr, 33 5 40 17 50 53

Young researcher skills required

The applicant will be a young doctor with a PhD in Environmental /Earth Science, or Chemistry/Physics. Skills in chemical imaging (electron microscopy, synchrotron μ XRF, XRF tomography, STXM...) and X-ray absorption spectroscopy are required. She/he is rigorous, autonomous and has strong interest in working in a transdisciplinary team. Preliminary experience in synchrotron radiation is highly recommended.

Preliminary experience in working with biological samples will be also an advantage.

Application procedure

Application must include:

- a cover letter emphasizing the relevance of your research to this position (max 1 page),
- CV (max 2 pages)
- a publication list
- contact details of at least two relevant professionals who can provide a reference letter based on request
- PhD diploma, as well as report provided after the PhD defense (*'Rapport de soutenance de thèse'* or equivalent) and reports from the principal examiners of the PhD defense jury (*'Avis des rapporteurs'* or equivalent).

Applicants selected in a first step will be then interviewed.

Application deadline

Submit your application to marie-pierre.isaure@univ-pau.fr, before **September, 30th 2018**.