

Postdoctoral Research Job Opening in transcriptomics & metabolomics

The Research group “Cyanobacteria, Cyanotoxin, Environment” <http://mcam.mnhn.fr//CCE/> from National Museum of Natural History (Paris-France) is looking for one post-doc to start in July 2016 with a flexible start date.

Employment period: 24 months

- Project description:

Our group focused on cyanobacterial toxic blooms that disrupt the functioning of the continental aquatic ecosystems worldwide (including drinking water and recreational water activities). Because it is still impossible to predict the concentration of toxins, we tried to elucidate the biological role of these toxins (*i.e.* microcystins) for the MC-producing organisms (*Planktothrix agardhii*). We recently found that the MC-producing (wild type MC+) can resist better to stressful conditions (*i.e.* high light) than the no MC-producing (Tran et al., 2013, 2015).

Therefore we want capitalize and deepen these first findings though this new project CYPHER¹ (funded by ANR² France). To reach this objective, we plan to analyze in systematic way the expression of various genes (implied in stress responses, in photosynthesis...) using real time RT-qPCR in mutants and wild type strains when exposed to different stress conditions (high light, T°C, Fe starvation and nutrients). At the same time, a metabolomic analysis will be proceed on various secondary metabolites (small molecules) previously listed (PhD in progress) produced by the controls (no stress condition) and compared to treated samples, in order to establish a precise pattern of these products and enlarge the pathway level of metabolism responses of toxic *vs* non-toxic strains, in unfavourable conditions.

The successful candidate will be in charge of cross-comparisons of transcriptomics data generated from targeting several genes in different conditions and in several strains, while analyzing metabolomics data (*i.e.* metabolites profiling approaches) with high performance mass spectrometry methods.

He/she will interact with the members of the research program and enhance inter-institutional collaborations with CEA (Atomic Energy Commission)-CNRS team (Dr Kirilovsky D.) and with Pasteur Institute (Dr Gugger M.), each partner of this project.

- Requirements:

- PhD in Molecular Biology or relevant discipline.
- Applicant with research experience in one or more of the following areas are particularly encouraged to apply: molecular biology, transcriptomics, mass spectrometry, metabolomics.
- Previous experience on cyanobacteria (or photosynthetic algae) is desirable, though not required.

The preferred candidate will be self-motivated, and will have a strong interest in the biological interpretation of metabolomics dataset including a level of integration of metabolomics with transcriptomics dataset.

- Applications should be sent by e-mail to Prof. Bernard (cbernard@mnhn.fr) and in Cc to kcomte@mnhn.fr and bmarie@mnhn.fr

Please include your CV, a two pages cover letter describing your research interest and experience, and 2 letters of recommendation with e-mail address of academic references.

¹ Cyanobacterial toxin production and Photoprotection processes in a changing EnviRonment

² Agence Nationale pour la Recherche