

Postdoctoral position in environmental microbiology

METIS, Sorbonne Université, Paris

The Biogeochemistry group of the METIS laboratory at Sorbonne Université is recruiting a post-doctoral fellow in environmental microbiology to study the **Impact of environmental conditions on the 3-hydroxy fatty acid profile of lacustrine bacteria**. The position is funded for two years within the French National Agency (ANR) framework. It will start as soon as it is filled (ideally Feb 2024). A summary of the project is provided below.

Microorganisms are able to adjust their membrane composition in response to the prevailing environmental conditions to ensure the optimal state of this key cellular compartment. Recent studies on surficial soils led the authors to propose 3-hydroxy fatty acids (3-OH FAs) as potential temperature and pH proxies. Two very recent regional studies showed that different sets of 3-OH FAs may also be used with the same objective in aquatic environments. Lacustrine settings are very sensitive recorders of past environmental conditions and provide an ideal ecosystem to obtain accurate information and evaluate/develop robust environmental proxies, potentially universal to terrestrial and aquatic settings. The objective of the project will be to obtain detailed information on the adaptation profile of 3-OH FAs from the source microorganisms of these lipids.

The applicant will be in charge of analysing the taxonomic diversity of Gram-negative bacteria from targeted lacustrine environments using a metabarcoding approach, isolating environmental strains from a selection of samples before studying their adaptation to temperature both in laboratory microcosms and in situ using a combination of chemical analyses and imaging (transmission electron microscopy). The bacterial response will be studied at the taxonomic, lipid and cell envelope levels.

This work will be based on a multidisciplinary approach, combining bacterial cultivation, state-of-the-art molecular biology, electron microscopy, geochemistry, isotope techniques and bioinformatics. It will be carried out in close collaboration with the MCAM (MNHN, Paris) and LECA (Univ. Grenoble) laboratories.

Required qualifications:

- PhD in environmental microbiology/microbiology.
- Interest in microbial lipid synthesis or the development of environmental proxies.
- Demonstrated skills in microbiology/molecular biology. Ideally the applicant will have an experience in analysing metabarcoding data. Skills in electron microscopy would be a plus.
- Basic knowledge and interest in organic geochemistry.
- Demonstrated record of presenting and publishing research results.

For more information about this position, please contact **Dr. Arnaud Huguet** (arnaud.huguet@sorbonne-universite.fr) or **Dr. Sylvie Collin** (sylvie.collin@sorbonne-universite.fr)

Applications should include a detailed CV and a cover letter.