Environmental Genomics and Bioinformatics (MEB)

Leader : Cécile Lepère

The research activities of the MEB team are in the field of microbial ecology: dynamics and structuring of assemblages, functional interactions, changes on a spatial and historical scale, emerging properties within ecosystems.

In the context of these investigations, environmental genomics tools are favoured and bioinformatics tools are developed to facilitate the data analysis derived from high-throughput sequencing. The core of our research is focused on lake ecosystems, where the diversity and physiology of microorganisms are relatively little studied compared to other ecosystems. Our metabarcoding and metagenomics work is thus one of the few studies to specifically address the microbial communities of lake ecosystems. However, in the interests of generalisation, we do not restrict our researches to lake ecosystems since we have developed studies, for example, on marine ecosystems (plastisphere) or on wastewater and hospital circuits.

Our researches are based on several axes:

1. Deciphering microbial metabolisms in lake ecosystems : the model organisms are selected among archaea, bacteria and unicellular eukaryotes
2. Speciation-evolution mechanisms at the microbial population level
3. Gene flow (Mobilome)