

**- Presentation sheet :**

**UMR CNRS 6023 Laboratoire Microorganismes : Génome et Environnement, Clermont Université (D. Debroas)**

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**Deciphering the role of microorganisms in biogeochemical cycles (C, N, S and Cl) and in the functioning of the lacustrine anoxic zones (model, Lake Pavin)**

*The anoxic zones of lake environments are the seat of essential or original biogeochemical mechanisms that are still poorly understood. For this, they host a diversity of microorganisms hitherto unsuspected among which some have developed, to adapt to environmental conditions, strategies based on a wide variety of fermentative processes or on the ability to couple the oxidation of organic substrates with the reduction of inorganic compounds other than oxygen. Thanks to the development of "multi-omics" approaches, the richness of the taxonomic and functional diversity of microorganisms in these constrained ecosystems has been measured. However, to validate and test the ecological hypotheses acquired through these high-throughput approaches, it is necessary to develop complementary approaches based on the isolation of key microorganisms of the different elementary cycles. This would allow, among other things, the deciphering of the physiology of the species of interest, to validate the annotations of the databases and to reveal new applications in biotechnology.*

*Biderre-Petit C, Taib N, Gardon H, Hochart C, Debroas D. New insights into the pelagic microorganisms involved in the methane cycle in the meromictic Lake Pavin through metagenomics. FEMS Microbiol Ecol, 2018, doi-org.inee.bib.cnrs.fr/10.1093/femsec/fiy183.*