



## Post-doctoral position on the characterization of novel enzymes involved in methanogenesis

A **two-year post-doctoral position** funded by a project grant of the ANR (The French National Research Agency), is available from **January 2025** in the laboratory “Evolutionary Biology of the Microbial Cell” headed by Simonetta Gribaldo, Professor at **Institut Pasteur**, Paris, under the supervision of Guillaume Borrel, head of the group “Evolution and Metabolism of Archaea”.

**Offer Description.** Methanogenesis is an archaeal-specific metabolism of key relevance in the global anaerobic degradation of organic matter and biogas production. This metabolism could have been active as early as 3.46 Gy ago and had a direct impact on the evolution of the Earth’s climate system, with an important implication in current global changes. Methanogens are present in all types of anaerobic environments such as extreme environments, wetland soils and the gastrointestinal tract of animals (including humans). In the past decade, large-scale reconstruction of genomes from metagenomes in a wide range of environments has led to a great expansion of our knowledge of methanogen diversity. Building up on this diversity, we identify uncharacterized enzymes associated to all methanogens or to specific pathways. We now aim at validating the inferred function of these enzymes through different molecular biology, biochemistry and microbiology approaches.

**The candidate.** Curious, highly motivated candidates must hold a PhD in biology and should have an expertise in biochemistry, genetics and microbiology. Knowledge in multi-omics would be appreciated. The candidates must demonstrate excellent autonomy, communication, and collaboration skills, and must speak English with our collaborators.

**The lab and its working environment.** Our lab (<https://research.pasteur.fr/en/team/evolutionary-biology-of-the-microbial-cell/>) consists of 13 people (2 researchers, 2 engineers, 5 post-docs & 4 PhD students). We develop complementary bioinformatics (*e.g.*, comparative genomics, phylogenomics) and experimental approaches (*e.g.*, culture of methanogens, genetic models, biochemistry) to resolve large scale evolutionary questions. Located at Institut Pasteur (Paris, <https://www.pasteur.fr/en>), our lab has access to multiple platforms and facilities (*e.g.*, protein production and purification, crystallography, molecular biophysics, ultrastructural bioimaging) and is part of the UMR CNRS 6047 regrouping 15 research units. As such, we have access to large and complementary expertise in a wide range of disciplines.

**Contact and application.** The application has to be sent to [guillaume.borrel@pasteur.fr](mailto:guillaume.borrel@pasteur.fr). It should include a CV, a cover letter and contact details of 3 references.