PhD position in Microbiome Research (m/f/d)

Long-term dynamics of the CF microbiota during CFTR modulator therapy

Research Environment

The French Alternative Energies and Atomic Energy Commission (CEA) is a leading European research institution driving technological innovation across a broad range of fields. Its fundamental research division contributes to key research programs in human health and personalized medicine. More specifically, the Laboratory "Innovative technologies for Detection and Diagnostics" (Li2D) (CEA Marcoule, Bagnols-sur-Cèze, France) conducts pioneering research in detection and diagnostics. Its work is grounded in recognized expertise in microbiology, immunology, genomics, proteomics, and bioinformatics. The Li2D hosts the ProGénoMix platform, a state-of-the-art mass spectrometry facility specializing in proteomics, metaproteomics, and multi-omics (www.progenomix.fr/en). The facility also includes microbiology laboratories, enabling integrated workflows from sample processing to data interpretation. The ProGénoMix group focuses on developing advanced mass spectrometry-based methodologies for pathogen identification and microbiota characterization, supporting both medical and environmental diagnostics.

Your role

You will be responsible for elucidating the long-term changes in the airway microbiome of cystic fibrosis patients in response to the newest CFTR modulator therapy. This includes integrating functional microbiome profiles with clinical data to understand microbiome dynamics, with the goal of identify effectors mediating pathogen-commensal interactions that could be exploited to better manage airway infections.

- Independent planning and execution of experiments, including thorough documentation and analysis of research data
- Presentation of research findings and preparation of scientific publications to disseminate results in peer-reviewed journals

within the Marie Skłodowska-Curie Doctoral network **METAMIC 3 - Metaproteome-based leveraged microbiome management in the context of One Health.** METAMIC 3 is funded by the European Commission under the Horizon Europe framework programme (Grant Agreement number 101225682).

The METAMIC 3 project will embed Doctoral Candidates (DCs) in a unique training environment to advance microbiome science through metaproteomics. The program addresses One Health challenges by integrating research on microbial mechanisms, microbiome dynamics in various ecosystems, and translational applications in clinical and biotech fields. DCs will benefit from expertise across molecular biology, bioinformatics, clinical research, and environmental science, supported by collaborations among academia, industry, and public sector partners.

Your profile

- Masters, Diploma or equivalent degree in biology, biochemistry, molecular medicine or similar before the contract starts
- Experience in protein biochemistry, microbiome research or molecular biology
- Strong interest in clinical microbiome research

- Team player, who thrives by working in an interdisciplinary environment
- Proficiency in scientific English (written and spoken).
- Willingness to spend several months at other institutions abroad. The project envisages the following secondments:
  i) P. Wilmes' lab (Luxembourg, three months) to exchange functional annotation and the knowledge hidden in the proteins with unknown functions.
  ii) Centre de Ressource et de Compétence de la Mucoviscidose (France, four months) to acquire knowledge on CF, the contribution of the treatments with modulators of the CFTR function as well as sampling.

Furthermore, candidates have to fully comply with the following essential eligibility criteria:

- Academic Qualification: The applicant must hold a relevant master's degree or equivalent and must have obtained the degree or equivalent by the DC start date.
- In order to be recruited to the network as a doctoral candidate, applicants must not already be in possession of a doctoral degree (i.e., a Ph.D. degree).
- Conditions of international mobility of researchers: researchers must not have resided or carried out their main activity (work, studies, etc.) in the country of their recruiting organization (i.e., France) for more than 12 months in the 3 years immediately prior to their recruitment.

What we offer

- A ground breaking research topic as well as multi-fold training and support for PhD students in framework of a collaborative training network;
- A central role in a cutting-edge metaproteomic project with direct translational relevance
- Working in an outstanding, collaborative, and international network;
- Training and scientific development opportunities in a supportive environment and an excellent working atmosphere in a very dynamic and professional team;
- The opportunity to present your data on international conferences and participate in workshops.

Doctoral students employed by the CEA benefit from the same advantages and duties as any CEA staff member (professional trainings, company canteen, vacations…).
Successful candidates will be employed on a 36-months contract with a gross salary of approx. 2,400 euros per month (living allowance); plus 600 euros mobility allowance and (if applicable) 660 euros family allowance.

How to apply

Applications should include: an extended curriculum vitae with full publication list, a cover letter, copies of your diplomas, a 2-page research statement that clearly describes your research profile and interests in the position as well as your expertise and methodological competencies, names and contact information of 2 references, if available. Applications should be submitted quoting **DC05** in the subject header to **lucia.grenga@cea.fr**

Closing date for application is 15/09/2025.

The anticipated start date for the position is 01/04/2026 (project month 7).