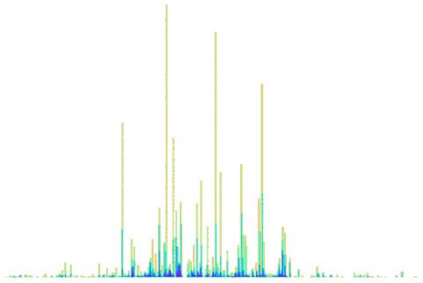

PhD position in Mass spectrometry

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) 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. 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.

At Li2D (CEA Marcoule, Bagnols-sur-Cèze, France), we invite applications for a

PhD position in Mass Spectrometry

Improving mass spectrometry acquisition for maximizing metaproteomics results

You will be responsible for improving mass spectrometry acquisition methods to obtain as much information as possible on microbiomes. This includes exploring and testing fractionation of samples, new data acquisition modes, additional filters such as FAIMS and PASEF ion mobility, and numerous parameters for acquiring mass spectrometry with standardized microbiome models and the latest generation of instruments. Methods will be benchmarked and their robustness will be documented in cross-disciplinary collaboration with other researchers within the Marie Skłodowska-Curie Doctoral network **METAMIC3 - Metaproteome-based leveraged microbiome management in the context of One Health.** METAMIC3 is funded by the European Commission under the Horizon Europe framework programme (Grant Agreement number 101225682).

The METAMIC3 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 analytical science, biochemistry, or similar before the contract starts
- Experience in protein biochemistry, microbiome research or mass spectrometry
- Strong interest in microbiome research and technological development
- 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) A two-months secondment with R. Heyer (B01) in Dortmund to exploit the MetaProteomeAnalyzer software and its novel developments.
  - ii) A two-months inter-sectorial secondment with D. Benndorf (B02) and N. Jehmlich (B09) in Leipzig to explore the benefits of PASEF mass spectrometer equipped with ion mobility devices.
  - iii) One month secondment with M. Pabst (B06) in Delft for exchanging sample preparation, chromatographic separation, and quantification strategies.
  - iv) One month secondment at the end of the PhD with G. Skorski, Phylogene (P08) in Nimes, to learn entrepreneurship and work at transferring the best protocols.

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
- 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.

Closing date for application is 15/09/2025. The anticipated start date for the position is 01/01/2026.

Complete applications cover an extended curriculum vitae with full publication list, a cover letter, copies of your diplomas and relevant notes, 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 DC02 in the subject header to jean.armengaud@cea.fr

Informal inquiries are welcome and can be submitted to jean.armengaud@cea.fr

For further information on the institute and the team please see: www.cea.fr/drf/english/ and www.progenomix.fr/en