Research Engineer (H/F)

Experimental Proteomics and Biochemical Characterization of *de novo* peptides in *Arabidopsis*

Scientific context

A fixed-term position for a Research Engineer (IR) is available in Lille (France) within the interdisciplinary PIE project ("Protein Interactions and Evolution"), funded by the Excellence Initiative of the Université de Lille (https://initiative-excellence.univlille.fr/en/our-structural-projects/pursue-research-excellence/cross-disciplinary-projects/pie-cdp). The PIE project investigates how novel protein interactions emerge during evolution, and how evolutionary changes in protein interactions drive speciation and major innovations in molecular, metabolic, and morphological traits through co-evolutionary processes.

Work package 1 of the project focuses on the emergence of *de novo* peptides and proteins, *i.e.* encoded by genes arising from previously non-coding genomic regions, and their integration into cellular regulatory networks. While many newly emerged peptides may be transient and evolve neutrally, some appear capable of acquiring new functions and participating in major evolutionary innovations. Using closely related species from the model genus *Arabidopsis*, the project combines comparative genomics, proteomics, structural biology and computational modeling to identify recently emerged peptides and characterize their biochemical properties and interaction partners.

The recruited engineer will contribute to the experimental characterization of these peptides using advanced proteomics and biochemical approaches.

Missions

The successful candidate will participate in the development and implementation of protocols dedicated to the detection and characterization of *de novo* peptides and their interaction partners.

Main activities include:

- The preparation of biological samples from tissues, for proteomics analyses,
- NanoLC-MS/MS analyses using high-resolution mass spectrometry,
- Cross-linking mass spectrometry,
- Expression and purification of *de novo* proteins and peptides for folding evaluation by Synchrotron Radiation Circular Dichroism (SRCD) and for studies of their interactome,
- Biochemical validation of *in silico* predicted interactions using Surface Plasmon Resonance (SPR) and Protein Interaction Screen on Peptide Matrix (PrISMa) assays,
- Participation in data analysis and interpretation in interaction with bioinformatics and structural biology partners,
- Contribution to experimental design, troubleshooting, and laboratory organization.

Environment

The position will be based in the University of Lille (Villeneuve d'Ascq, France) within a collaborative consortium involving researchers in evolutionary biology, proteomics, structural biology and bioinformatics.

The engineer will work in close interaction with members of several partner laboratories and will be co-supervised by **Dr. Eléonore Durand** at the Unité Évolution, Écologie et Paléontologie (Evo-Eco-Paleo, https://eep.univ-lille.fr/en/presentation-english/), **Dr. Fabrice Bray** at MS4Omics (https://msaplab.fr/?lang=en) and **Dr. Julie Bouckaert** at the Unité de Glycobiologie Structurale et Fonctionnelle (UGSF, https://ugsf.univ-lille.fr/en/).

Profile

Required qualifications and skills:

- Master's degree, engineering degree, or equivalent qualification in biochemistry, proteomics, analytical chemistry, or related fields,
- Ability to work autonomously while interacting efficiently within a multidisciplinary research environment, good communication skills in English.
- Strong experimental background in biochemistry and/or proteomics,
- Strong experience with mass spectrometry,

The following skills would be considered advantageous:

- Experience with cross-linking MS,
- Experience with biophysical interaction methods,
- Interest in molecular evolution and emerging proteins.

Contract

- 1.5 year fixed-term contract,
- Position based in Villeneuve d'Ascq (France),
- Salary according to experience and institutional salary grids,
- Starting date: early September 2026.

How to apply

The position can start in October or November 2026. Please send a motivation letter, a CV and contact information for referees to julie.bouckaert@univ-lille.fr and fabrice.bray@univ-lille.fr, by July 15, 2026. Applications will be reviewed as they arrive, and interviews will be scheduled.