Post Doc - Research profile

ARUM Project (PRCI ANR-FWF)

Type: Post Doc
Start of the position 1st semester of 2025
The contract is for 3 years.
Affiliation : Laboratoire BVpam (https://lbvpam.univ-st-etienne.fr/fr/index.html), Université Jean Monnet (UJM), Saint-Étienne, France
https://lbvpam.univ-st-etienne.fr/fr/index.html

KEYWORDS
Specialized metabolites, Volatile compounds, Biosynthesis, Secretion mechanisms, Molecular biology

Contact for HR:
Please sent your application to recrutementsujm@univ-st-etienne.fr before the deadline **15th of January, 2025**, it should include

- Letter of motivation
- CV (including personal information)
- Publication list
- Diploma/transcript of Master degree and PhD degree

Contact for the Laboratory: Jean-Claude Caissard
caissard@univ-st-etienne.fr

Application deadline : 1st semester of 2025

CONTEXT

UJM is a multidisciplinary university that brings together more than 20,000 students on 5 campuses in Saint-Étienne and Roanne. It offers training in the fields of science, technology, health, human and social sciences, law, economics, management, arts, literature and languages. Benefiting from a significant international outlook, UJM also offers particular expertise in supporting student success and professional integration, in a rich and dynamic student life environment. Thanks to its high-level training, its research on cutting-edge segments, its international attractiveness, and the modernization of its campuses, it is a university that is transforming itself according to a responsible and humane establishment project.

THE POSITION

The BVpam laboratory (CNRS UMR 5079) at Jean Monnet University in Saint-Etienne studies volatile organic compounds in plants, from their biosynthetic pathways to their ecological functions.

The ARUM project (PRCI ANR France – FWF Austria) is a project that brings together the expertise of three laboratories: UMR 5079 BVpam (PI: Jean-Claude Caissard, caissard@univ-st-etienne.fr), UMR 6134 Sciences Pour l'Environnement of the University of Corsica (PI: Marc Gibernau) and the "Department of Environment and Biodiversity" of the University of Paris Lodron in Salzburg, Austria (PI:

Stefan Dötterl). The project aims to study pollination by deception of the species Arum maculatum. This species diverts the cycle of flies that lay eggs in animal excrement by emitting foul-smelling volatile compounds and by producing heat. This highly synchronized and sophisticated system is suspected of emitting two types of volatile signals: an "external" signal emitted by the appendix imitating the oviposition sites and an "internal" signal emitted by the male flowers imitating a pheromone signal inciting flies that land on the appendix to descend into the floral chamber. The project aims to study these two signals. The part to be carried out in the BVpam laboratory concerns the study of the biosynthesis of volatile compounds and their secretion.

ACTIVITIES

The candidate will have to create an RNAseq library before and after the emission of volatile compounds by the appendix and by the male flowers. He will have to process the RNAseq data and propose candidate genes for the biosynthesis of volatile compounds, in particular certain terpenes still unknown (see the bibliography below). He will have to clone and test the enzymes in vitro. He will also have to propose candidate genes for the secretion of volatile compounds (ABC-transporters, LTP, etc.). He will thus make the link with another Post-Doc of the laboratory who is currently working on this question in other plant models (STRASS project, PRCI ANR France – NSF USA). The candidate can read the following references to contextualize the project:

Leguet et al. 2014 Naturwiss 101, 623-635 – https://doi.org/10.1007/s00114-014-1197-8
Widhalm et al. 2015 Trends Plant Sci 20, 545 – https://doi.org/10.1093/g3journal/jkac175
Onda et al. 2015 Sci Rep 5, 8753 – https://doi.org/10.1038/srep08753
Szenteczki et al. 2022 Genes Gen Genet 12, jkac175 – https://doi.org/10.1093/g3journal/jkac175
Gfrerer et al. 2021 Front Plant Sci 12, 719092 – https://doi.org/10.3389/fpls.2021.719092
Gfrerer et al. 2022. Sci Rep 12, 5086 – https://doi.org/10.1038/s41598-022-08196-y
Gfrerer et al. 2023. Front Plant Sci 13, 1046532 – https://doi.org/10.3389/fpls.2022.1046532

PROFESSIONAL SKILLS AND KNOWLEDGE

The candidate should have already worked on an RNAseq library and have cloned genes. A minimum knowledge of enzymatic biochemistry and gas chromatography would be a plus.

Joining UJM means:

- Working in a committed institution, in a strong approach to the institution's social responsibility, with a sustained focus on quality of life and working conditions.
- Developing and training throughout your career.
- Benefiting, throughout your career, from access to a real variety of professions, mobility and professional development.
- Working for a public service mission (training and research) in contact with a student public.
- Being able to benefit from numerous cultural and sports accesses.