Nantes Université is hiring

for (Team M3, UR2160 ISOMer, Nantes Université)

Post-doctoral Researcher

Nantes Université is a public institution of higher education and research which offers **a unique University model** in France, uniting a university, a university hospital (Nantes University Hospital), a technological research institute (IRT Jules Verne), a national organization (Inserm) and major schools (Centrale Nantes, Nantes Saint-Nazaire School of Fine Arts, Nantes School of Architecture).

These actors concentrate their forces to **develop the excellence of Nantes Research** and offer **new training opportunities**, in all areas of knowledge.

Sustainable and **open to the world**, Nantes Université ensures the quality of the study and working conditions offered to its students and staff, to promote their development on all its campuses in Nantes, Saint-Nazaire and La Roche-sur- yon.

Work environment and context

The ISOMer-UR2160 laboratory, directed by Pr. Olivier Grovel, is a laboratory of the Health pole of Nantes Université located on the campus of the Faculty of Sciences and Techniques in Nantes. It is composed of 3 Research teams with a particular interest in marine substances and organisms, from the macroscopic scale to the microscopic and even molecular scale. The work of the M3 team in which this position is open is mainly dedicated to the study of Metabolites of the Marine Microbiome. Made up of 12 professors and associate professors, 5 technical staff and 8 doctoral students, it is a multidisciplinary team combining the research fields of microbiology, chemistry of natural products, metabolomics, analytical chemistry, biochemistry and pharmacology. Its main research theme concerns the detection, identification, valorization and understanding of the biosynthesis and ecological roles of marine microbial metabolites with biological and potentially pharmacological activities. The M3 team relies on a complete analytical park including a metabolomics platform including LC and GC chromatographic systems coupled to various types of detectors dot mass spectrometers, and statistical and chemometric tools, some of which are developed in-house. Placed under the responsibility of the M3 team leader and the project manager, the recruited person will be totally devoted to the conduct of the "HALO-CAT" research project, funded by the National Research Agency (https://anr.fr/Projet-ANR-21-CE44-0003) 2021-2025 and will also be responsible for supervising M2 trainees and/or doctoral students.

Tasks

This position is entirely dedicated to the "HALO-CAT" project, funded by the National Research Agency and will consist of producing, purifying, analyzing and identifying natural halogenated molecules using metabolomics tools (chemometrics, molecular networks , etc.) for their detection, conventional methods of extractive chemistry for their targeted purification, but also by biocatalysis approaches based on halogenation enzymes purified from marine fungi. In addition, the structures of the molecules obtained will be elucidated and their activity evaluated on different biological targets, more particularly on a panel of bacterial and fungal strains of therapeutic interest. Depending on the progress of the project and the molecules obtained, the elucidation of the biosynthetic pathways of these compounds, and more particularly the halogenation mechanisms involved, will be investigated via molecular biology and genetic engineering approaches in collaboration with partner teams from the project.

The recruited person will also participate in the upkeep and maintenance of the analytical park, the management of the budget and consumables dedicated to the project as well as the writing of reports, publications and the dissemination and valuation of the results.

Main activities

- **Microbiology**
  - Cultures of fungal strains on a small and large scale on solid and/or liquid medium
- **Production, purification et isolation of natural products**
  - Purification and isolation of targeted metabolites using chromatographic separation methods: flash, HPLC, etc.
  - Structural elucidation via the study of MS spectra, NMR, CD...
- **Detection of metabolites of interest through MS-based metabolomics and bioinformatics**
  - LC-MS profiling of extracts and fractions from marine fungi
  - Use of tools for automated detection of molecules of interest (via the use of dedicated softwares or scripts developed in R)
  - Use of methods using molecular networks and associated tools for highlighting molecules of interest
- **Biocatalysis**
  - Development of biocatalysis/biotransformation reactions
- **Interpretation of results and valorization**
  - Interpretation and critical analysis of results (metabolomics, biological activity, ...)
  - Writing of scientific publications (and/or patent) in order to promote the results obtained
  - Participation in discussions with project collaborators and proposal of research axes
  - Participation in one or more scientific events (congress, workshop, etc.) in order to present the project and its results.
  - Participation in team meetings
- **Project management and maintenance**
- **Supervision of interns and doctoral students**

Specifics of the position

- **Collaboration with several external laboratories** mainly via videoconferences and mail, but some travel may be considered depending on the needs of the project.
- **Participation to 1 or more scientific events** (in France or abroad) in order to communicate on the results of the project
- **Participation in the training of Master 2 students and doctoral students** in the laboratory
- **Mandatory expression in English: read, write, speak**

Required profile

- Side: State Civil Service
- Type of recruitment: Post-doctoral contract
- Location: Nantes
- Salary: €2,271 gross per month according to the Nantes Université contract management charter for non-tenured employees
- Training and/or qualification: PhD (preferably in chemistry but other applications will be considered)
- Previous experience welcome for the position: Phytochemistry, Biocatalysis and/or biotransformation, Metabolomics
- Position open to agents likely to claim legal priority in accordance with the provisions of article 60 of the law of January 11, 1984 on statutory provisions relating to the State civil serviceVersant : Fonction publique d'Etat

Skills and knowledge required

- **General, theoretical or disciplinary knowledge:**

- Mass spectrometry
- Chromatographic methods
- Nuclear magnetic resonance
- Microbiological cultures
- Writing scientific reports
- Expression in English language

- **Operational skills:**

- Extraction, purification and isolation of natural molecules
- HPLC-MS analyses
- Desired: Data processing and analysis via dedicated bioinformatics tools (molecular networks and/or metabolomics tools)

- **Soft skills:**

- Autonomy
- Team work
- Dynamism
- Specialized communication and popularization

Our strengths : *• Teleworking possible,* *• 45 days of annual leave* *• • Working time 38h12*	Advice to applicants: Do not hesitate to consult the Nantes Université website

Deadline for receipt of applications: November 1, 2022
Date of the recruitment committee: November 10, 2022
Desired start date: December 1, 2022
Contact: please send your application (CV + cover letter) exclusively by email to: catherine.roullier@univ-nantes.fr