



A : Sciences du vivant, de la terre et de l'environnement

Ingénieur de recherche

Concours N° 1

**Organizing delegation: Ile-de-France Meudon (DR 05) (MEUDON)**

**Nb of positions:**

1

**Job-type:**

Biological data analysis engineer

**Assignment:**

Institut de génomique fonctionnelle de Lyon, LYON 07

**Function group:**

Group 3

**Mission:**

The engineer will be charge of the design and development of bioinformatics tools and supporting the teams at the Lyon Functional Genomics Institute (IGFL). He/she will be involved in the analysis of data from new sequencing technologies, and will be housed at the IGFL's NGS Sequencing Platform (PSI). He/she will participate in multiple genomics, transcriptomics and epigenomics projects on a variety of subjects, in model or non-model animal species, and more broadly, on the site, in joint actions between laboratories (e.g. within the Digital Analysis Council of UAR3444 Biosciences). Support for the analysis of sequencing data will be provided in particular through training activities.

**Activities:**

- Advise users on the choice of tools or the analysis approach to be used for IGFL and PSI platform projects.
- Support, in interaction with biologists, and if necessary, take part in, the implementation of the unit's biological data analysis projects, using current bioinformatics, biostatistics and bioanalysis tools.
- Identify, design and develop bio-calculation tools adapted to the questions posed, enabling the data obtained to be analyzed.
- Ensure the long-term viability of analysis tools by making them accessible to members of the unit, and more widely, on shared servers and local platforms, in conjunction with a bioinformatics network being set up between the site's biology laboratories.
- Structure a network around data analysis and bioinformatics within the unit to improve site team interactions concerning analysis tools.



- Participate in the PSI platform's training activities and develop the principles and implementation of biological data analysis techniques.
- Develop and/or adapt tools to disseminate and make available to the local, national and international scientific community the data acquired by the teams.
- Disseminate and promote results in the form of technical reports, publications or oral presentations.
- Organize scientific and technological watch.

### Compétences :

- Theoretical and practical knowledge of programming and biostatistics (R, bash, python and/or equivalent languages).
- Knowledge and/or use of current analysis tools for omics data in all their diversity: high-throughput sequencing, particularly single cell, for transcriptomics, epigenomics, genomics, metagenomics, spatial transcriptomics, etc.
- General knowledge in the field of life sciences (physiology, evolution, development), and if possible, in functional genomics, will be appreciated.
- Experience of working on computing clusters.
- Experience in using traceability tools (e.g. GitHub, NextFlow, snakemake).
- General knowledge of deontology, ethics, laws and regulations relevant to the research field (in particular confidentiality, computer security, data backup and protection, etc.).
- Ability to interact, discuss and popularize with a variety of audiences ranging from experimental biologists to bioinformaticians and biostatisticians.
- Proven experience in managing several projects in parallel, on a variety of subjects and interacting with different people.
- Proficiency in scientific English (spoken and written) at level C1 (European framework of reference for languages).
- Excellent human relation skills.

### Context:

The Institute of Functional Genomics of Lyon (IGFL) is a mixed unit (UMR Ecole Normale Supérieure de Lyon, CNRS, Université Lyon 1 and USC INRAe) with over 100 staff and 10 research teams. These teams aim to understand the role of the genome in animal development, physiology and evolution using model and non-model organisms. All teams use data from new sequencing technologies, and sometimes imaging or modeling data, in their research themes. The institute is located within the ENS de Lyon, in the Gerland district and biodistrict, in a recent building at 32-34 avenue Tony Garnier. The engineer will play a key, structuring role within the institute and the site, supporting scientific projects using the new sequencing technologies of the IGFL and PSI teams. The projects will be highly diversified, involving quantitative and/or spatial analysis of transcriptomic (e.g. single cell) or genomic traits, or epigenetic issues, and will apply to various model organisms (*Drosophila*, zebrafish, mice, human cell lines) and non-model organisms (semi-aquatic insects, crustaceans). The research engineer will be housed within the IGFL's sequencing platform (PSI), currently staffed by 5 people, but will report directly to the IGFL management. He/she will be supervised by the co-head of PSI, as well as by a scientific committee. With a transversal position within the institute. PSI interacts with all the unit's teams, as well as with the other units on the site, it is also an



integral part of the Equipex+ "Spatial-Cell-ID" project and collaborates actively with UAR3444 Biosciences through its activity within the Conseil en Analyse Numérique (CAN).

