

W/M - IGE « Protein Biology-Biochemistry Engineer » - CISAM+

Category : A

Corps : IGE

Host structure/Department : AFMB UMR7257/CISAM+

Job location: Campus de Luminy, Laboratoire AFMB Case 925 Polytech bat B 163 avenue de Luminy 13009 Marseille

BAP : Life, earth and environmental sciences (A)

Job type: Scientific experimentation and instrumentation engineer (A2A42)

Job ratio : 100% -Full time

Hiring date: no later than September 02, 2024

Nature of the recruitment : position open to non-permanent staff, 2-year fixed term contract

WORKING ENVIRONMENT AND CONTEXT :

Aix-Marseille Université (AMU) is a multidisciplinary university structured around five major disciplinary sectors (Arts, Humanities, Languages and Social Sciences; Law and Political Science; Economics and Management; Health; Science and Technology and a multidisciplinary sector). AMU trains 80,000 students in 18 components (faculties, schools, institutes), spread over four departments (04, 05, 13 and 84) and 10 towns (for more information: www.univ-amu.fr).

1. CISAM+ project description:

As part of the PIA 4 "Excellences" call for projects, the CISAM+ project led by Aix-Marseille Université (AMU), via the Cité de l'Innovation et des Savoirs d'Aix-Marseille (CISAM) and the A*MIDEX Foundation, has been selected with an endowment of 40 million euros.
<https://cisam-innovation.com/2021/12/13/le-projet-cisam-laureat-de-laap-excellences-du-pia4/>

The winning CISAM+ project is a continuation of CISAM, an Aix-Marseille University entity and a flagship for innovation in the region, launched in 2018. Drawing on the CISAM innovation model and existing scientific strengths, the CISAM+ project aims to build an integrated ecosystem strengthening the impact of the site's research and teaching and facilitating the transition from "invention" to "innovation", and to duplicate the concept on seven AMU sites where training and support for innovation will be deployed, as well as facilitating interactions between researchers, students, citizens and socio-economic and cultural players.

2. Description of the host structure:

As part of the Architecture and Functions of Biological Macromolecules (AFMB) laboratory, the Marseille Screening Center (MaSC) is a screening platform bringing together 3 sites specialized in the development and implementation of new dedicated technologies:

- screening of chemical libraries
- discovery and characterization of new bioactive molecules
- drug design

Labelled IBISA in 2022 and Aix-Marseille Platform in 2023, MaSC is positioned as a major player in the search for antiviral and anticancer compounds and inhibitors of protein-protein or protein-ligand interactions.

The combination of our experience and know-how, coupled with our complementary equipment, creates a dynamic interface that favors project development and optimization.

MaSC consists of :

- The CRCM high throughput screening platform (HITS)
- The Marseille Timone viral screening platform (PCVMT)
- The Marseille Luminy screening platform (PCML), to which the recruited engineer will be attached.

3. Description of results expected at the end of the project contract:

- Production and purification of viral proteins (NS5 and polymerases) from the Flavivirus family, and the Coronavirus family (nsp7,8,12) for the platform's various projects.

Indicator: production of around ten proteins per year.

- Development of VHH production/purification protocols.

Indicator: will be quantified at the start of the project (09.2024).

- Characterization of compounds using orthogonal, gel and TSA approaches.

Indicator: number of compounds will vary according to the platform's demand for services.

- Realization, follow-up, traceability and communication of experimental results according to expected formats (ANR, ANRS-MIE, European projects, etc.).

Indicator: number of reports communicated.

4. Assessment of objective achievement

Management presents the objectives and roadmap, and sets up a follow-up system.

Progress on the project will be discussed continuously throughout the year. CISAM+ Project Management will follow up with a quarterly meeting. This meeting will be used to monitor the progress of the IGE's projects and to collect indicators specific to the CISAM+ project.

The follow-up interviews will be part of a continuous updating and improvement process.

A dashboard will be set up by the agent to monitor the actions to be taken on each indicator, which he or she will share with management and explain during the interview.

An annual performance review will take place.

Indicators: The engineer recruited will be responsible for responding to a series of indicators linked to the CISAM+ project.

The indicators are as follows:

- The engineer will support innovation through services and research collaborations, production/purification contributions for European IMI-CARE, PanViPrep, national ANR, ANRS-MIE and industrial projects, as well as technological developments to be implemented on the platform.
- The engineer will contribute to the training of students and employees:
 - o internal and external users of the platform's devices.
 - o interns in protein production/purification

HIERARCHICAL POSITIONING

Under the functional authority of the Business and Partnership Development Manager in the Health sector (CISAM+) and of the Director of CISAM in his capacity as Scientific and Technical Manager of the CISAM+ project.

Reporting to the Project Manager, Ms Eydoux. She will ensure the successful integration of the agent. She will supervise the actions carried out and the progress of the program defined in the missions.

MAIN TASKS AND ACTIVITIES

Missions and activities:

Working as part of the MaSC screening platform (PCML site), the engineer will have to adapt to experimental conditions and carry out a range of specialized techniques for sample preparation, analysis, characterization and high-throughput robotized screening.

More specifically, the person recruited will be responsible for:

- **Main activity:** Produce and purify viral proteins required for the various projects of the screening platform, as well as proteins associated with these projects (antibodies, VHH, etc.).
- **Secondary activity:** Develop and/or implement tests to characterize antiviral compounds using biochemical techniques (enzymatic activity and sequencing gel analysis).
- Assist the platform's research engineer in setting up and running screening campaigns (from 500 to >20,000 compounds) and biophysical characterization tests.
- Participate in the implementation of a quality approach by validating inventories of produced proteins and/or assays developed.

- Manage stocks of reagents and consumables and orders for protein production/purification
- Communicate results and reports to the research engineer and platform manager
- Participate in common laboratory tasks

Operating conditions :

He/she will be assigned to the MaSC platform, PCML site, located on the Luminy Campus in the AFMB laboratory.

He/she will be required to travel regularly to the Aix-Marseille site or to carry out missions as part of his/her work.

Particular hardship :

Supervision: No, on a regular basis. Yes, of potential trainees.

Project management: Yes

Limiting conditions: Part of the screening platform's equipment is located in a type L2 laboratory, where radioactivity is handled (H3, P32) and access is subject to restrictions (medical examination and prior authorization). The laboratory is also GMO/MOT-certified. The design engineer must be able to meet these clearance criteria even if he/she will not be handling radioactivity and/or MOTs. Because of the specific equipment required to carry out the activity, teleworking is not eligible.

SKILLS REQUIRED :

1. Professional and/or technical skills :

- Biology/Biochemistry
- Experience in protein production/purification (ideally E. coli system)
- Knowledge of AKTA-type purification systems will be a significant plus
- Knowledge of biochemical techniques (enzymatic activities, gel sequencing, etc.)
- Knowledge of biophysical and structural techniques (e.g. TSA, thermopheresis, crystallography, cryo-EM...) will be a plus.

2. « Cross-disciplinary » skills :

- Ability to work as part of a team on multiple projects in collaborative and cross-disciplinary mode for both the academic and industrial sectors.
- Ability to communicate orally and in writing in English.

3. Required skills and know-how :

- Rigor and organization essential: precision work on robotized systems (AKTA, Mosquito, Beckman 4000, Beckman I5 systems)
- Management of parallel projects and deadlines, in particular respecting deadlines for services
- Traceability of results (archiving, reports, etc.) and quality approach
- Ability to work as part of a team on multiple projects in collaborative and cross-functional mode for both the academic and industrial sectors.
- Ability to work in good health and safety conditions.
- Ability to communicate orally and in writing in English.
- Strong appetite for experimental work, with diversified technological approaches (predominantly technical: "bench" work).

Degree required

Training: Bac+3 level with experience or BAC+5, in Biology, Biochemistry field

Desired experience: **2 years' experience** would be a plus, but not a prerequisite.

Applications (CV and covering letter) should be sent electronically to:
cecilia.eydoux@univ-amu.fr with a copy to nathalie.fenouil@univ-amu.fr.
Deadline : 13th May 2024