CALL FOR APPLICATION

INSERM CHAIR Recruitment

Computational modeling for multi-omics data

The Inserm chair recruitments opened to Inserm are intended for researchers with strong potential to manage and lead research teams and participate in national, European or international projects.

This recruitment, based on research and teaching projects, is aimed at researchers with a doctorate or equivalent and a first post-doctoral experience. The position is offered on a fixed-term contract (CDD) with a view to tenure in the Inserm Research Directors personnel at the end of the contract.

Application on EVA: https://eva3-accueil.inserm.fr/sites/eva/chaires/2024/Pages/default.aspx

| Contact the host lab | Download and fill the scientific files and the application request on EVA | Create an account on Eva3: https://www.eva3.inserm.fr/create | Upload your application when your are ready (Before April 2, 2024) |

Supporting institution:	Inserm : Institut national de la Santé et de la recherche médicale
Name of the head of the institution:	Pr. Didier Samuel
Academic region:	Provence Alpes Côte d'Azur
Location/ Site concerned:	Inserm U1068 - Centre de Recherches en Cancérologie de Marseille (CRCM)
Partner institutions:	Inria, Aix-Marseille University
Research contact: **Administrative contact:**	Jean-Paul BORG: jean-paul.borg@inserm.fr chaires-professeur-junior@inserm.fr
Research fields EURAXESS :	Cancer research / Health Technology (Medical sciences)
Keywords:	multi-omics, single-cell, computational modeling

Job title to be filled:	Chaire - Computational modeling for multi-omics data
Body after tenure:	Research Director
Anticipated duration of the contract:	4 years
Scientific domains/fields:	Computational oncology
Corresponding specialized scientific commissions (CSS):	CSS 2 - Oncology, genetic diseases CSS 7 - Health Technology
Project name:	Computational modeling for multi-omics data

Remuneration package	3 500€ - 5 000€ according to research experience
Quota	Full Time

Strategy of the host institution:

The proposed position will allow Inserm to recruit a researcher with expertise in computational modeling for multi-omics with a focus on Cancer. The proposed Chair is in line with the main Inserm objective: "Improve the health of all by improving our fundamental and disease-related knowledge and by innovative public health.

Research and treatment". This recruitment is also expected to contribute to the international attractiveness of Inserm and the host center CRCM. It will reinforce the Department of Translational Research and Innovative Therapies of CRCM and the newly created Marseille Immunology Biocluster.

Strategy of the host laboratory:

One of the CRCM's current strategic priorities is to strengthen bioinformatics and data science, and specifically the analysis of multi-omics data that are becoming prominent in cancer research. This momentum has materialized through the recent creation (2021) of a joint team with Inria (National institute for applied mathematics and computer science): COMPO (COMPutational pharmacology and clinical Oncology). COMPO is one of the few Inria-Inserm joint teams at the national level, the only Inria team located in Marseille, and the sole team specialized in digital aspects at CRCM. This multidisciplinary team (clinicians, pharmacologists, and mathematicians/data scientists) nevertheless faces a shortage on the digital side, with only one permanent researcher (Inria) and a professor close to retirement. The CRCM therefore wishes to reinforce its computational human resource at an excellent level, with an ideal environment for fruitful joint research with multiple CRCM teams (e.g., predictive oncology, pancreatic cancer, REMAP-4Kids,...). A Chair focusing on this specific profile (multi-omics data modeling) addresses both a strong need of CRCM's research teams and would also bring new and complementary skills to those already existing within COMPO (mechanistic modeling of dynamic data in clinical oncology).

Summary of the scientific project:

The generalization of new generation sequencing data (i.e., multi-omics: genomics, transcriptomics, proteomics,) as well as the emergence of new methods (single cell sequencing, spatial transcriptomics) opens new research horizons on cancer pathologies. These data, of very large dimensions and volume, bring new methodological challenges in terms of statistical and mathematical analysis, as well as computational modeling. The development and numerical implementation of novel methods has become a key issue in modern oncology, both in terms of understanding the biology of cancers and for medical oncology. On the first aspect, the analysis and modeling of these data is, for example, fundamental for the study of key phenomena such as intra- and inter-tumor heterogeneity of cancer cells and their microenvironment. On the other hand, the integration of multi-omics data into predictive artificial intelligence models will allow the development of precision medicine based on personalized treatments.
This recruited researcher will aim at developing cutting-edge computational methods to leverage multi-omics and single-cell resolution data into novel and translational discoveries in cancer research. This will be performed in synergistic interaction with the other CRCM teams.

Summary of the teaching project:

Engineering and digital science programs offering an in-depth understanding of biological and medical fields require a strong grasp of underlying sciences, technologies stemming from the latest advancements, and medical issues and constraints. Since mastering all these skills is rarely accomplished by a single individual, it's necessary to educate students to instill the scientific culture and open-mindedness required for work in a highly interdisciplinary context. The developed curriculum will leverage research platforms and, more broadly, emphasize the link between education and research. It will also be designed to seamlessly integrate into international programs (Erasmus Mundus Master, CIVIS Alliance – European Civic University, etc.). He/she will have the possibility to intervene in existing masters at Aix-Marseille University that involve computational modeling in biology: Artificial intelligence and biomarkers (newly created in 2022), Bioinformatics, Pharmacokinetics and Pharmacometrics, Digipharm, CENTURI; as well as Engineering curriculae (e.g., Centrale Marseille).

The recruited researcher can leverage transformative grant calls on campus, such as TFR (Training through Research Transformation), to enhance the education-research connection.

National Research Agency package:

200k€

Other package:

Co-funding: 50k€

Scientific communication and dissemination, Science and society :

Scientific communication and dissemination :
- Publications in peer-reviewed journals
- Software development
- Active participation in international conferences
- Engagement in science outreach activities by Aix Marseille Université towards the public (Science Festival, European Researchers' Night, public lectures, citizen science...)
- Involvement in activities related to institutes and the socio-economic sphere (decision-makers, local authorities, businesses...)

Open Science :
- Organization, management and public release of large-scale multi-omics data base
- Development and maintenance of open source code (gitlab / github)
- Preprints and deposit of publications in HAL

Science and society :
The recruited researcher is expected to actively communicate on his/her research with the general public. This includes classical channels like public lectures, print media and the CRCM website, but even more the modern possibilities of social media and new formats for the web. The recruited researcher should also consider contacts with patient's organizations.

Indicators:

- Quantity and quality of publications
- Number and ambition of research projects submitted/obtained
- Number and extent of outreach actions towards the public and/or society

Selection of candidates:

It is expected the recruited researcher to become rapidly a group leader in the GAD team. So the candidate should demonstrate ability to supervise Ph.D students, post-doctoral fellow and technical support staff. She/he should have the capacity to obtain competitive funding to manage her/his group.

Successful candidates are chosen by a selection commission composed of six to ten members, the majority of whom are specialists in the fields of research concerned.

The commission carries out an initial examination of the applications, focused in particular on candidate experience and skills relative to the research and teaching project presented above. A shortlist of candidates is then selected for interview.
Only candidates selected by the selection committee on the basis of their applications will be invited to interview.

The interviews are followed by a deliberation during which selection commission will discuss the quality, originality and, where appropriate, the interdisciplinarity of the research and teaching projects presented by the candidates, their motivation and their scientific and teaching supervision capacity.

The candidates selected at the end of the selection process will be offered a researcher contract, following approval from the President and CEO of Inserm.

Required profile:

Education Level **: Phd**

Researcher Profile : R3/R4

R3 Established researcher A stage in a researcher's career describing those who have developed a level of independence and can described as an established researcher
R4 Leading Research A stage in a researcher's career where they can be termed a 'leading researcher'. This would include the team leader of a research group or head of an industry R&D laboratory.

Your application will be evaluated according to the following criteria :

- Relevance and originality of the project related to the research field
- International exposure in research projects
- Your ability to raise funds
- Participation in editorial and reviewing activities
- Your teaching experience
- Your ability to lead a team…

Application instruction:

Applications can be submitted online at [EVA](#).
Deadline application: **April 2, 2024**

Please complete the scientific file in English.

It is imperative to contact the laboratory corresponding to the Chair you have applied for in order to build the project with them.

Position also open to 'Bénéficiaires de l'Obligation d'Emploi' (disabled persons), as defined in article 27 of law no. 84-16 of January 11, 1984 on statutory provisions for the civil service.