

## CALL FOR APPLICATION

### INSERM CHAIR Recruitment

### Neural regulation of immunity

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/chaieres/2024/Pages/default.aspx>



<b>Supporting institution:</b>	Inserm : Institut national de la Santé et de la recherche médicale
<b>Name of the head of the institution:</b>	Pr. Didier Samuel
<b>Academic region:</b>	Marseille
<b>Location/ Site concerned:</b>	Aix-Marseille Université - CIML - U1104 Inserm
<b>Partner institution:</b>	Aix-Marseille Université
<b>Research contact</b> <b>Administrative contact</b>	Mme Sophie UGOLINI: <a href="mailto:ugolini@ciml.univ-mrs.fr">ugolini@ciml.univ-mrs.fr</a> <a href="mailto:chaieres-professeur-junior@inserm.fr">chaieres-professeur-junior@inserm.fr</a>
<b>Research fields EURAXESS:</b>	Immunology, Neurosciences
<b>Keywords:</b>	Immunology, Neurosciences, Inflammation, Cancer, Immunity, Viral infection, Neuropeptides, Innate immunity, Macrophages, Adaptive immune response

<b>Job title to be filled:</b>	Chaire de professeur- Régulation neuronale de l'immunité
<b>Body after tenure:</b>	Research Director
<b>Anticipated duration of the contract:</b>	5 years
<b>Scientific domains/fields:</b>	Neuroimmunology- CNU 65 and 47-03, CoNRS 27
<b>Corresponding specialized scientific commissions (CSS):</b>	CSS5: Immunologie, Microbiologie, Infection
<b>Project name:</b>	Neural regulation of immunity

<b>Funding :</b>	
<b>ANR package :</b>	200k€
<b>Co-funding AMIDEX</b>	50k€
<b>Total project</b>	250k€

<b>Remuneration package</b>	3 500€ - 5 000€ according to research experience
<b>Quota</b>	Full Time

### Strategy of the host institution:

The host institution aims to strengthen the emerging field of Neuroimmunology.

The survival of living organisms depends on their capacity to develop mechanisms of defense against environmental challenges causing tissue damage, infections and cancer. These protective functions involve both the immune and nervous systems, which have traditionally been considered independent. However, the nervous system has recently been shown to regulate immune functions.

Marseille is a major pole of research in the fields of Immunology and Neuroscience. The aim of this project is to link these disciplines in order to discover unexplored areas at the border between these different biological fields. The research and teaching activities will be developed in the Luminy campus, which brings together the faculty of Sciences of Aix- Marseille University (AMU), many laboratories and research institutes, which cover major scientific disciplines. The campus includes more than 8000 students, 32 research laboratories (CNRS, INSERM, University, INRA, IRD, CEA) (more than 1500 researchers, post-doctoral fellows, engineers...), an incubator and high-tech companies, a training and conference centre, student housing.

The Centre d'Immunologie de Marseille-Luminy (CIML) is a mixed CNRS/INSERM/AMU research center located on the Luminy campus. This laboratory is ideally positioned to develop ambitious multidisciplinary approaches. Its international reputation and the research projects it develops in close collaboration with the APHM (Assistance Publique des Hôpitaux de Marseille), other research institutes and AMU are major assets for hosting an Inserm Chair.

### Strategy of the host laboratory:

The Centre d'Immunologie de Marseille-Luminy (CIML) is a research institute internationally recognized in its discipline. Formed of 16 research teams (200 people) and six advanced technological core facilities, it has developed an organization and practices designed to foster the creativity and risk-taking of its researchers.

In coordination with AMU, the CIML has set up a master's and PhD student program. This includes an international partnerships between the CIML and the Immunology program at Harvard Medical School in the United States and the Karolinska Institute in Sweden.

Several research teams within CIML specialize in neuroimmunology. These include the Neural regulation of immunity team, led by Sophie Ugolini, which will host the Inserm Chair and explore this new area of biology at the border between immunology and neurobiology. Supported by an ERC grant, an Impulscience grant and other funding (from ANR, FRM, ARC, La Ligue contre le Cancer), this laboratory is deciphering the involvement

of the nervous system in the regulation of inflammatory and immune responses in infectious diseases or cancer.

The team has recently identified new neuroimmune pathways that play critical roles in regulating infectious disease, inflammation, and tissue repair (J. Exp. Med. 2017, Nature Immunol. 2018, Cell 2019, J. Exp. Med. 2020, Nature 2021, Nature com. 2021).

The opening of an Inserm Chair within this team will strengthen this emerging and promising area of research within the Research Institute, the Luminy campus, and AMU.

### Summary of the scientific theme:

Pain is one of the major signs of inflammation. Following injury or infection, inflammatory mediators activate nociceptive sensory neurons in tissues. These neurons transmit the signal to the brain, eliciting pain. They also release a number of mediators directly at the site of injury, modulating local immune responses. The laboratory of Sophie Ugolini at the CIML, in collaboration with the laboratory of Aziz Moqrich at IBDM (also located in the Luminy campus) recently demonstrated a key role for subsets of sensory neurons in limiting inflammation and promoting macrophage tissue-repair functions. However, the precise mechanisms involved remain poorly understood. The goal of this project is to decipher the role of the nervous system in the regulation of host immune, inflammatory and pro-repair responses, from the molecular to the systemic level. The host laboratory tackle these questions by studying genetically modified mice with ablations, activations or functional inactivations of particular subsets of neurons. These questions are being addressed in models of viral infection, tissue injury and cancer.

The scientific strategy is based on a holistic approach based on the analyses of both local neuro-immune interactions in tissues, and of systemic regulation. Indeed, pain perception and inflammatory processes also activate a stress response in the central nervous system. This project will, therefore, analyze the modulation of immune responses by local and systemic neuroendocrine pathways. The potential therapeutic value of the findings for treating inflammatory diseases and cancer will be also explored.

### Summary of the teaching project:

Immunology and Neuroscience are among the leading disciplines taught at Aix-Marseille University. The recruited researcher is expected to foster a strong link between these two disciplines, which will strengthen the pole of neuroimmunology already established at the Marseille-Luminy campus. Several professors and assistant professors from the CIML are significantly involved in teaching in the L3 and Masters programs in Immunology. Strengthening teaching in neuroimmunology will therefore be crucial in this scheme making it possible to link and articulate the master's programs in immunology and neurobiology. Students will benefit from state-of-the-art knowledge to understand both complex systems. These bridges between disciplines will strengthen a French research network that will provide a favorable ground for new discoveries and make important contributions to this rapidly expanding field.

### National Research Agency package:

200k€

### Scientific dissemination/ Open Science:

We expect our articles to be published in peer-reviewed journals that favour open access. All our publications will also be deposited in the HAL open archives system (<https://hal.archives-ouvertes.fr>). The results of this research will be disseminated to the scientific community as well as to the general media. CIML researchers are frequently interviewed by media in France, Europe and the USA, whether by the scientific or general press (France Inter, Europe 1, Le Figaro, Science et Avenir, La Provence, Curiaunautes des Sciences...). Dissemination is also done through CNRS and INSERM communication resources, as well as through the CIML Twitter account and website.

#### Open Science:

All the manuscripts will be included in the national multidisciplinary scientific open archive database HAL (<https://hal.archives-ouvertes.fr>) and will be published in open access journals such as Nature Communication and preprint servers such as BioRxiv or Research square. The materials published will be available to the scientific community, when necessary through an MTA, and the CIML frequently supplies mouse lines or other materials to groups outside the CIML. The knowledge, data and tools coming from this project will be shared as early as possible in the Research and Innovation (R&I) process, in open collaboration with all relevant knowledge actors, including academia, industry, public authorities, end users, citizens and society at large.

### Science and society:

We expect that this interdisciplinary project will reveal new and unexpected neuroimmune pathways involved in the regulation of pathophysiological inflammatory processes that should offer promising therapeutic perspectives.

### 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 be 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...

### Indicators:

#### Teaching:

Establishment within the Master of Immunology of Aix-Marseille University of a neuroimmunology module shared with the Neuroscience program.

#### Research:

We aim at publishing high impact articles in first rank journals.

### 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.