

Appel à manifestation d'intérêt - Chaire Inserm

Fiche projet type

Établissement/organisme porteur : INSERM

Nom du chef d'établissement/d'organisme : Gilles Bloch

Site concerné : Paris Cardiovascular Research Center – INSERM UMR 970 – Université Paris Cité

Région académique : Paris

Établissements/organismes partenaires envisagés : Université Paris Cité

Project: Multi-organ dysfunction and cardiovascular pathology in metabolic diseases

Key-words: Cardiovascular, Diabetes, Metabolism, multi-organ disease, Immunity, inflammation

Duration: 5 years

Scientific domain: Life Sciences / Physiology, Pathophysiology / Cardiovascular Diseases /metabolism

Section (s) CNU/CoNRS/CSS correspondante (s): CSS3 - INSERM

Strategy of the host institution:

The French National Institute for Health and Medical Research (INSERM) is the central organization for research in human health in France. The research conducted by INSERM covers all fields of biomedical research, from basic to highly applied research at the heart of the healthcare system and public health expertise. The research and teaching themes of this junior professorship are in line with the priorities of the means and performance contract between INSERM and the French government, which are notably to promote excellence and groundbreaking research and to support a research program encompassing the continuum of health research, i.e., from basic research, through translational research, to patients. It also echoes the priority given to public health and prevention and reflects the objectives of the research axis of the national health strategy 2018-2022, in terms of human health knowledge and development support for medical innovations.

Strategy of the host laboratory:

The Paris Cardiovascular Research Center (PARCC, France, <http://parcc.inserm.fr/>) is a fully integrated academic biomedical center focused on conducting cutting-edge research encompassing the clinical, translational and basic sciences in cardiovascular research. The strategic research axes of the PARCC are articulated around 3 priorities: 1/ gene and molecular signaling; 2/ immunity and metabolism and 3/ predictive models and multidimensional approaches. For each strategic axis, PARCC is developing a continuum between fundamental research, innovative development, translational research and patient benefit. These strategic priorities are elaborated within four main pathological contexts, targeting multi-organ diseases: 1/ macro- and micro- vascular pathologies associated to metabolic diseases, 2/ heart failure and cardiac sudden death, 3/ endocrine

and resistant hypertension, 4/ renal pathologies and transplantation. The research theme of the Inserm Chair is, therefore, fully in line with PARCC's strategic research axes. This chair opportunity is also part of the internal development program entitled Young Talent Program initiated by the PARCC to welcome researchers at the beginning of their career and help them develop an autonomous and excellent research team. To accommodate the beneficiary of the junior chair, PARCC will make available a fully equipped L1 laboratory of 60 m² and will provide privileged access to its state-of-the-art technical platforms and support services.

Summary of the scientific project:

The research project will mainly address the interplay between multi-organ dysfunction and the cardiovascular compartment during metabolic diseases, including -but not limited to- diabetes, dyslipidemia, hypercholesterolemia, kidney diseases or non-alcoholic fatty liver disease. Particular attention will be paid to the role of innate and adaptive immunity and notably to its involvement in the pathogenic intra-organ (e.g. interaction with the microcirculation) but also inter-organ (e.g. heart/kidney, heart/liver, kidney/liver) dialogues likely involved in the multi-organ dysfunction observed in these pathological contexts. The experimental approach will integrate a multi-scale multi-organ analysis, including single cell 'omics, using elegant experimental models, but also liquid and solid human biopsies. The final objective will be to propose innovative and transformative approaches to multi-organ vascular health in diabetes and metabolic diseases.

Summary of the teaching project:

The PARCC has been a driving force in the creation of the Institute of Cardiovascular Sciences, which brings together 33 research teams working on cardiovascular diseases within the Université Paris-Cité. From this Institute, we have created a Graduate School Cardiovascular Sciences – UP Cité (starting date October 2022 for a duration of 9 years), which offers multidisciplinary training that integrates all levels of cardiovascular research, from fundamental approaches to the latest clinical developments. The recruited researcher will deliver courses within this graduate school (Undergraduate level, Master 1, Master 2) providing knowledge of the cellular and molecular mechanisms of vascular and cardiac physiology. The courses will also address pathological concepts and innovative approaches to therapy, prognosis and diagnosis targeting the heart and vessels. The recruited researcher will have to ensure continuity and pedagogical harmonization of the cardiovascular teaching from the L3 level to the Master's level, across the different research formation units of both the faculties of Health and Science of UP Cité. Finally, the recruited researcher will be a major driving force in the creation of a new Master 2 in Cardiovascular Sciences with an international dimension within UP Cité (planned for 2025).

Funding :

ANR package	200k€
Co-funding*PARCC package	a fully equipped laboratory, 50k€
Total project	250K€

*source et montant

Scientific communication and dissemination:

The recruited researcher will aim to publish regularly in the best international scientific journals. He/she will communicate on the results of his/her research during international congresses dealing with his/her fields of specialty, and will participate in the organization and animation of scientific events in Paris, France and abroad. To do this, he/she will rely on the partnerships already in place between the PARCC and prestigious centers in cardiovascular research across Europe and North America. He/she will also develop new international partnerships in the field of cardiovascular diseases.

Open Science:

The recruited researcher will scrupulously comply with Open Access (OA) practices. In particular, She/He will be committed to publishing results in peer-reviewed journals using OA and will deposit data and manuscripts in preprint repositories as early as possible. She/He will manage research data in line with the FAIR principles through the use of a data management plan (DMP). She/He will comply with the principle *“as open as possible, as closed as necessary”*, including access to information about the research tools and instruments needed to validate or re-use our data. For data availability, She/He will follow the strategy *“as open as possible, and as closed as necessary”* to protect the partners' interest, including intellectual property (IP) protection and other reasonable considerations. Furthermore, She/He will follow the INSERM requirement indicating that all articles have to be posted with the full text in HAL, a multidisciplinary French OA archive. The policy is to deposit in the HAL-INSERM accepted author's manuscript. The editor's version can be posted only when the article is in OA with a Creative Commons license in GOLD journals or after the editors' embargo period. INSERM also recommends posting preprints on *BioRxiv*.

Science and society:

Thanks to the close links between PARCC members and the communication services at INSERM and Université Paris Cité, the awardee's main scientific discoveries and medical advances will be regularly taken up by the local and national media. Dissemination to the general public will be continuous, through both actions of communication and participation in local or national events as well as the use of PARCC, INSERM, UP Cité social network.

Indicators:*Teaching:*

Success rate of tutored Masters and Ph.D. students
Student assessment of teaching methods
Degree of involvement in the organization of cardio-vascular courses within UP Cité

Research:

Publications in high-impact journals
Research grants
Adequacy between the research carried out by the chair holder and PARCC scientific policy

Knowledge transfer:

Collaborative research with public findings
Participation in national and international scientific meetings