

Postdoctoral Position in Mitochondrial Ca²⁺ Regulation & Cardiac Ischemia-Reperfusion Injury

Workplace:

One postdoctoral research fellow position is open in the IRIS team (Ischemia-Reperfusion Injury Syndromes) from the CarMeN lab (Cardiovascular, Metabolism & Nutrition) in Lyon, France. The goal of the IRIS team, gathering both scientists and clinicians, is to unravel the physiopathology of the IR syndromes in the heart, brain and kidney, by combining fundamental, translational and clinical approaches. One of the main axes focuses on the molecular mechanisms through Ca²⁺, mitochondria and metabolism.

Website under re-construction: <http://carmen.univ-lyon1.fr/>

Address: Laboratoire CarMeN-Inserm U1060-IRIS
Groupement Hospitalier Est- Bâtiment B13
59 Boulevard Pinel, 69500 Bron-France

Supervision: Dr Mélanie PAILLARD

Type of Contract: Postdoc contract funded by the French National Agency for Research (ANR JCJC)

Contract length: 1 year, extendable for up to 3 years in total

Starting date: January-February 2021

Salary: 28-31k€ gross/year (1.8-2.1 k€ neat/month) depending on experience

Project: Myocardial infarction remains a frequent and disabling disease with still no therapeutic strategy to mitigate the risk of developing heart failure. The mitochondrial Ca²⁺ uniporter (mtCU) represents the key structure which controls Ca²⁺ entry inside mitochondria and therefore a relevant target upstream of the mitochondrial Ca²⁺ overload to modulate not only cell death but also mitochondrial bioenergetics and Ca²⁺ homeostasis. Following the recent discovery of the mtCU components and of its regulation, this project aims at determining the molecular mechanisms controlling the mtCU composition and localization during cardiac ischemia-reperfusion.

Our hypothesis will be tested through three original tasks from molecular to whole animal scale, up to the translational level in human cardiomyocytes. The project and the position are fully funded by the French ANR.

Research methodology:

- Adult mouse and human cardiomyocyte isolation
- Adenoviral and AAV infection
- Tissue fractionation of mouse heart after in vivo ischemia-reperfusion
- Ca²⁺ fluxes and FRET imaging
- Proteomic analysis: MS, IP...
- Heart function analysis: echocardiography, histology

References: Paillard et al., *Circulation* 2013; Antony, Paillard et al., *Nat Commun* 2016; Paillard et al., *Cell Rep* 2017; Paillard et al., *Mol Cell* 2018

Application: The candidate must hold a Ph.D. degree in Biology or Physiology and have a strong interest for research in physiology and cell biology. Candidates should have excellent communication skills in English, both for oral presentations as well as scientific writing skills. Background in cell culture and imaging is required. FRET/super resolution, molecular biology or bioinformatics will be a plus.

Please send the following documents to Dr. Mélanie PAILLARD

1. A detailed CV and a motivation letter.
2. A short summary of your Ph.D. thesis, and if applicable, of previous post-doc.
3. The name and contact information for two academic references.

Contact and further information: Mélanie PAILLARD - melanie.gomez@inserm.fr