Post-Doctoral Fellowship in Neurobiology

Description

A post-doctoral position is available in Lyon in the context of the awarded project funded by the French National Research Agency: RHU MARVELOUS 2016 "New MR imAging to pReVent cErebraL and myOcardial reperfUSion injury" – www.rhu-marvelous.fr that focuses in the assessment of acute reperfusion therapy of ischemic stroke and myocardial infarction (see the project synopsis below).

Acute ischemic stroke is amongst the leading causes of death and disability worldwide. Reperfusion therapy has become the standard of care in acute stroke patients. During reperfusion, oxygen is restored, which is critical for maintaining neuronal viability but may in turn induce reperfusion injuries. Until now, there is no neuroprotective therapeutic strategy applied at the time of reperfusion. We propose to transpose our work from myocardial infarct to ischemic stroke on mitochondrial targeting. A first clinical trial has shown encouraging results with the use of cyclosporin A (CsA) in acute stroke patients in whom reperfusion was successful. For a large scale translation of these findings and in order to refine the clinical protocols in terms of patients stratification, dose and administration pathway, better understanding of the mechanistic effects of our therapeutic strategies on mitochondrial function and immunomodulation is needed.

Our research team is seeking a highly qualified motivated neurobiologist to fill a Post-Doctoral Fellowship position in the area of brain ischemia-reperfusion injury.

Mentoring and Environment

The project will combine in vivo (pre-clinical models including different transgenic mice) and in vitro (primary cortical neurons with or without macrophage co-culture) models of cerebral ischemia-reperfusion with proteomic analysis as well as mitochondrial functions and Ca^{2+} homeostasis experiments.

Materials: in vivo surgery and in-vivo imaging, brain clearing, cell culture, HR chamber, microscopes, FACS, fluorimeter

Qualification

- PhD or equivalent doctoral degree in neurobiology
- Excellent communication skills
- Willing to work in a rich clinical and multidisciplinary environment

The candidate will benefit from all facilities provided by the Clinical Investigation Center of Louis Pradel Hospital (database, statistical support, technical support for data collection, etc...) and clinical experience of stroke neurologist.

He/She will be expected to develop translational studies in available pre-clinical models and develop ad-hoc in vitro experiments.

Application and contact

The position is open immediately. Application file should include:

- CV
- Letter of intent
- Names and addresses of two references

For more information or to apply for the position (including an up-to-date CV and motivation letter), please contact: Pr Norbert Nighoghossian (norbert.nighoghossian@chu-lyon.fr, and Pr. Emmanuelle Canet-Soulas (emmanuelle.canet@univ-lyon1.fr)

Administrative contact:
LYON INGENIERIE PROJETS
L'Atrium - BP 32009
69616 VILLEURBANNE cedex
Tel: +33 (0) 4 72 69 76 00 ; Mobile: +33 (0) 6 34 84 51 96

MARVELOUS project synopsis

The managements of ischemic stroke (IS) and acute myocardial infarction (AMI) are now very similar and consist primarily on achieving rapid and complete reperfusion of the ischemic tissue by endovascular procedures. Given the mismatch between medical resources and the growing number of patients affected by these two diseases, careful patient selection and personalized care are required. In this regard, imaging during diagnosis workup plays a central role to assess tissue viability, tissue at risk of infarction and the risk of early clinical deterioration. In the subacute phase, imaging could assess reperfusion injuries involving inflammatory and microthrombotic mechanisms that negatively affect the fate of the injured brain or myocardium and could be targeted by new specific treatments. Unfortunately, this is made difficult by inappropriate image processing technology, with lack of robustness, lack of accurate scientific validation and with prohibitive computing time for clinical practice and offering only a qualitative analysis of tissues. Improved magnetic resonance (MR) imaging could fill the gaps and provide a mean to better identify critical markers of risk and to select the patients who will benefit the most from targeted protective therapies. Translational development of such imaging methods requires collaboration between basic scientists (to provide and characterize the pathophysiology of experimental models), clinicians (to recruit patients and identify clinically-meaningful targets) and the industry (to develop innovative imaging and post-processing tools with clinical-grade validation). The MARVELOUS project falls within this framework. It brings academic expertise in the biology of ischemia reperfusion injury, in cardiology, vascular neurology, imaging and health economics together with the private company Olea Medical, recognized for its worldwide competence in the development of powerful MR image post-processing systems. This synergy will produce an innovative MR image post-processing software platform allowing an improved evaluation of cardiac/brain damage, hence a more standardized evaluation of each patient's risk that is the prerequisite for a personnalized cost-effective strategy of care. Further, MARVELOUS will examine how this innovative product may impact health economics and how it might in a near future contribute to modify our in-hospital organization of care for AMI and IS patients.