

Fiche de poste

Post-Doctoral Fellowship in Stroke –MRI

Description: 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 that focuses in the MRI assessment and acute reperfusion therapy of ischemic stroke and Myocardial infarction (see the project synopsis below). Our research team is seeking a highly qualified motivated individual to fill a Post-Doctoral Fellowship position in the area of stroke MRI.

Mentoring and Context: The candidate, will work within a rich environment, including Brain imaging department (Pr Y Berthezène) , stroke neurology department (Pr N Nighoghossian), interventional neuroradiology. The project takes place in direct collaboration with industrial partnership (OLEA Medical).

The clinical site includes multimodal imaging equipment (two 1.5 T and 3 T clinical MRI systems in the hospital and dual energy clinical CT). A research MRI and a Hybrid PET-MRI, experimental MRI 7 T, within the CERMEP platform 100% dedicated to research).

Qualification: Candidates should hold a PhD degree in physics, engineering, computer science or biomedical engineering. Motivation and team work combined with excellent communication skills are expected. Experience in one or more of the following areas are highly desirable:

- MR physics

- Scientific programming
- **Serious knowledge in MRI** sequences dedicated to ischemic stroke MRI image analysis and post treatment processing.

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 and neuroradiologist. In addition the candidate will establish significant interaction with CREATIS Lab and Carmen research teams nested within the site.

Appointment Length and Duration: 3-year post-doctoral fellowship. Start date November 2018.

Location: Hôpital Neurologique Pierre Wertheimer Lyon , France, .

Contact: For more information or to apply for the position (including an up-to-date CV and motivation letter), please contact Pr Yves Berthezene (yves.berthezene@chu-lyon.fr) or Pr Norbert Nighoghossian (norbert.nighoghossian@chu-lyon.fr)

Administrative contact : Constance Enriquez

Chargée d'affaires / Project Manager

LYON INGENIERIE PROJETS

L'Atrium - BP 32009

69616 VILLEURBANNE cedex

Tél. : +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 personalized 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.