

## **Postdoc - MT5-MMP in Alzheimer's disease: pathogenic mechanisms and therapeutic modulation.**

A 3-year full-time postdoctoral position is open at the Institute of Neuropathophysiology (INP), Aix-Marseille University/CNRS, as part of a consortium that also includes the Centre d'Etudes et de Recherche sur le Médicament de Normandie (CERMN; Caen). The consortium is funded by the FRM/Fondation Alzheimer and the project is expected to start on October 1, 2020.

The pioneering work from Dr. Rivera and Dr. Khrestchatisky's teams shows that MT5-MMP is at the crossroads of amyloid precursor protein (APP) metabolism, neuroinflammation and synaptic dysfunction in the early stages of Alzheimer's disease. This metalloproteinase could therefore represent a novel therapeutic target. Accordingly, the project will focus on the screening in cell culture models of siRNA, peptidomimetics and high affinity peptide or VHH libraries to identify molecules that will antagonize the deleterious interactions of MT5-MMP with other key proteins in Alzheimer's pathogenesis. The selected molecules will be chemically optimized and vectorized to reach the brain in a mouse model of Alzheimer's disease. The project involves working with heterologous cells, iPS-derived neural cells and genetically modified mice, as well as conjugation of peptide vectors to biomolecules and phenotypic analysis of cells and brains using biochemical, molecular and cell biology, and histopathological approaches.

The INP is a centre of training and research excellence (<https://inp.univ-amu.fr>) that combines basic and translational research to study the organization, function and interaction of neural cells, as well as the molecular and cellular basis of major brain diseases. The INP is part of the Centre of Excellence in Neurodegeneration (CoEN) and offers an internationally competitive research environment with state-of-the-art facilities that are shared with the biotechnology company Vect-Horus. The postdoc will be co-supervised by Dr. Santiago Rivera and Dr. Michel Khrestchatisky and will also work in close interaction with the scientific and technical staff of Vect-Horus.

The project will be developed at the Faculty of Medicine, located in the centre of Marseille, a few kilometres from the magnificent seafront, the Calanques National Park and the charm of inland Provence, all ideally suited to outdoor and cultural activities.

The postdoc will benefit from full coverage of the French health and social systems.

### **Applicant Requirements:**

- Hold a PhD in science, biotechnology or pharmacological sciences and have research experience in one or more of these areas.
- Highly motivated and qualified individual with a strong interest in neuroscience (preferably in neurodegenerative diseases) and technical skills in biotechnology (siRNA, peptide/VHH library screening, phage display), biochemistry (immunoblot, immunoprecipitation, enzymatic assays...) and cell biology (cell culture, cell imaging).
- Excellent oral and written communication skills in English.
- Leadership, organizational and social skills to work in groups and independently.

The deadline for applications is 22 July 2020. Applications should include a CV, a cover letter indicating major interests and research experience, list of publications and 3 reference letters or contact information of former supervisors. Applications should be sent to Dr. Santiago Rivera and Dr. Michel Khrestchatisky at:

[santiago.rivera@univ-amu.fr](mailto:santiago.rivera@univ-amu.fr)  
[michel.khrestchatisky@univ-amu.fr](mailto:michel.khrestchatisky@univ-amu.fr)