

# Postdoctoral position

## Identification of early neurodegenerative biomarkers in patients with isolated RBD and in patients with Parkinsonism using an ultra-high field (7T) MRI (Marseille, France)

**Position description:** A 24-month postdoctoral position is available at the Centre de Résonance Magnétique Biologique et Médicale (CRMBM, UMR7339, CNRS/Aix-Marseille Université/APHM), located in Marseille, France. The position will focus on identifying early biomarkers of neurodegeneration related to isolated REM-sleep Behavior Disorders (iRBD), Parkinson's disease (PD), and atypical parkinsonism using a 7T brain MRI. The aim is to better understand the underlying pathophysiology and facilitate an early differential diagnosis between PD and other clinically related disorders. These biomarkers consist of an evaluation of brain tissue microstructure (cortical thickness, basal ganglia and brainstem volume and deformation), ion homeostasis (sodium), neuromelanin, iron load, and connectivity. Also, correlations with clinical symptoms (motor, dysautonomic, and cognitive) are looked for.

**Starting date:** 1<sup>st</sup> January 2025

**Salary:** at least 1896 euros net/month (more depending on years of experience). Salary is provided by APHM (Assistance Publique des Hôpitaux de Marseille)

### Candidate profile:

- Strong teamwork, pro-active learning, interdisciplinary thinking skills, high level of initiative and commitments
- PhD in medical imaging, biomedicine, physics, engineering, or related field
- Advanced technical skills in either sequence programming, signal processing, or image reconstruction
- Strong programming skills in at least one of these languages: Python, Matlab or C++
- Basic knowledge of neurosciences is a plus
- Practical experience in acquiring and analyzing MRI data
- Excellent communication skills, both written and verbal in English is required
- Speaking French is not a requirement but will benefit the candidate's integration.

**Lab description:** CRMBM-CEMEREM research focuses on multimodal MR investigations of heart, muscle, and central nervous system pathologies. Translational research is conducted, from animal models to patients and from MR developments to clinical applications.

CRMBM MR facilities include Bruker 4.7T and 11.75T MR systems for small animal imaging and Siemens 7T and 3T MR systems for human studies.

For more information on CRMBM: <http://crmbm.univ-amu.fr>



**Environment:** Located in the Southeast of France, by the Mediterranean Sea, Marseille offers a wide range of cultural and outdoor activities, as well as easy access by train or plane to Paris, Spain, or Italy.

Key figures: 246 sunny days/year, monthly rent 700 euros (40-m<sup>2</sup> apartment)

For more information on Marseille:

<http://www.marseille-tourisme.com/en/discover-marseille/>

### Applications:

Please send your CV, cover letter, list of publications before November 1<sup>st</sup> 2024 to Stephan Grimaldi: [stephan.grimaldi@ap-hm.fr](mailto:stephan.grimaldi@ap-hm.fr) (PI supervisor)