

## Postdoctoral Position: Neuroimaging of the Substantia Nigra in Parkinson's disease using QSM

We are seeking an ambitious and creative Postdoctoral Researcher to join a Michael J. Fox Foundation-funded project *“Evaluation of neuromelanin-sensitive imaging, quantitative susceptibility mapping, and free-water imaging as biomarkers of nigral dopaminergic dysfunction.”*

You will be based at **Donders Centre for Cognitive Neuroimaging** and at **Radboudumc (Nijmegen, The Netherlands)** working at the intersection of three research groups:

- **Systems Neurology** (Dr. Rick Helmich)
- **Prevention of Parkinson's Disease** (Dr. Sirwan Darweesh)
- **MR Structural Quantitative Imaging** (Dr. José Marques)

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The project aims to develop MRI-based biomarkers for (prodromal) Parkinson's disease, comparing **QSM** (lead by you!) with **neuromelanin-sensitive MRI** (lead by **Stéphane Lehéricy** at Sorbonne University, Paris, France) and **diffusion-derived free-water imaging** (lead by **Alain Dagher** McGill University).

Additional partners include Macquarie University (Australia), Tel-Aviv Sourasky Medical Center (Israel), and the University of Lübeck (Germany), offering excellent networking and career development opportunities at the interface of engineering and clinical research.

You will have access to state-of-the-art MRI and computational facilities, as well as a large, multi-site longitudinal MRI dataset (>1,000 early Parkinson's patients and ~100 individuals with prodromal isolated REM Sleep Behavior Disorder), accompanied by rich clinical phenotyping.

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### Key Responsibilities

- Develop quality-control tools for multi-site data curation.
- Implement longitudinal QSM analysis methods.
- Develop R2\* and QSM-based biomarkers of nigral dysfunction.
- Coordinate biomarker extraction and data transfer with diffusion and neuromelanin imaging work packages
- Maintain reproducible, open, and FAIR-compliant analysis workflows.

### Requirements

- PhD in physics, biomedical engineering, medical imaging, computer science, or a related field.
- Expertise in MRI data analysis (Python, MATLAB)
- Experience with population MRI studies is a strong advantage.

**Application Process:** <https://www.radboudumc.nl/en/vacancies/160668-postdoc-neuroimaging-of-the-substantia-nigra-in-parkinsons-disease> , Deadline: the 27<sup>th</sup> February

### For more information:

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