



## POSTDOCTORAL POSITION

### *in vivo* brain imaging at the Paris-Saclay Institute of Neuroscience (Saclay) & Molecular imaging research center (Fontenay-aux-Roses)

#### Contact

Lucile Ben Haim, Ph.D.

#### Team

"Alternative signaling pathways underlying neuron-astrocyte cooperation in health and disease" (Dir. Carole Escartin, Ph.D.)  
<https://jacob.cea.fr/DRF/IFRANCOISJACOB/english/Pages/Departments/MIRcen/ResearchThemes/Reactive-astrocytes.aspx>

#### Environment

- fMRI experiments will be performed on a 11.7T magnet at MIRcen (Fontenay-aux-Roses, France) in collaboration with Celine Baligand, Ph.D. (Dir. Julien Valette, Ph.D.).

- Fiber photometry experiments will be performed in our new lab at the Paris-Saclay Institute of Neuroscience (Saclay, France)  
<https://neuropsi.cnrs.fr/en/homepage/>

#### To apply

- 1) a complete resume
- 2) a 1-page summary of previous research and interests
- 3) 2 letters of recommendation

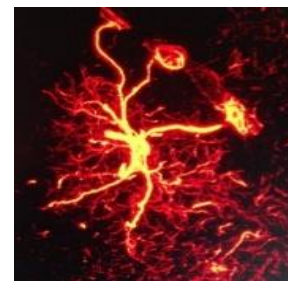
As a single pdf file at  
[Lucile.ben-haim@cnrs.fr](mailto:Lucile.ben-haim@cnrs.fr)

A 2-year postdoctoral scholar position, funded by the French Medical Research Foundation, is available for highly motivated and talented candidates with a Ph.D. in Neuroscience, Bioimaging or Bioengineering. You would be joining the research group of Lucile Ben Haim, at the Paris-Saclay University (France), starting at the beginning of 2024 (Jan to May).

#### Project

Neuron-astrocyte interactions are classically assessed through analysis of astrocyte calcium signals, overlooking transcription-factor based signaling, despite their emerging roles in health and disease. In this project, **you will study how these alternative signaling cascades shape the cooperation between astrocytes and neurons and regulate complex behaviors.** To do so, you will use unique astrocyte-specific viral tools to manipulate distinct transcription-factor based signaling and determine the effect on neuronal function.

In this project, at the interface between neurobiology and biomedical brain imaging, you will setup and perform: 1) Resting-state and task-based (olfactory stimulation) exam using functional magnetic resonance imaging in awake mice and 2) in vivo fiber photometry experiments to assess local neuronal function in awake behaving mice.



#### Skills

- Live imaging on awake mice
- Surgery (viral injections, optic fiber implantation)
- Mouse behavioral testing and analysis

#### Valuable assets

- Interest in methodological development (MRI-compatible olfactory stimulation in awake mice)
- Skills in bioengineering or programming for data analysis

#### References

- Abjean et al. Reactive astrocytes promote proteostasis in Huntington's disease through the JAK2-STAT3 pathway. *Brain*. 2023
- Ben Haim & Escartin Astrocytes and neuropsychiatric symptoms in neurodegenerative diseases: exploring the missing links. *Current Opinion in Neurobiology*. 2022
- Baligand et al. Zero Echo Time 17O-MRI Reveals Decreased Cerebral Metabolic Rate of Oxygen Consumption in a Murine Model of Amyloidosis. *Metabolites*. 2021
- Escartin et al. Reactive astrocyte nomenclature, definitions, and future directions. *Nature Neuroscience*. 2021.
- Kelley, Ben Haim et al. Kir4.1-Dependent Astrocyte-Fast motor neuron interactions are required for peak strength. *Neuron*. 2018