MeLiS
Mechanisms in integrated Life Sciences

UMR 5284   U1314

Equipe Synapthopathies et Autoanticorps Faculté de Médecine Rockefeller 8 Avenue Rockefeller
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PhD position or engineer contract on microglia-neuron interactions at MeLis in Lyon

The SynatAc lab is looking for a talented **PhD student or engineer** to work on **glia morphology**. The global aim of this collaborative project financed by ANR is to develop a specific dMRI-based method for detecting cerebral inflammation using a machine learning classifier. This classifier will be trained with Monte-Carlo simulations of dMRI signals obtained from digital phantoms of the complex white matter microstructure, including axons, resting and activated microglia, and astrocytes.

PhD/Engineer Position Objectives:
- Characterize the morphology of microglia and astrocytes in various neuroinflammatory conditions, such as neuromyelitis optica and multiple sclerosis, using animal models.
- Perform brain tissue sectioning, immunohistochemistry, and confocal imaging to acquire high-resolution morphological data on glial cells.
- Develop automated image analysis pipelines using Python or MATLAB to quantify the morphological features of microglia and astrocytes.
- Provide the obtained morphological metrics to the project collaborators to be incorporated into the computational model for dMRI-based neuroinflammation detection.

Required Qualifications:
- PhD candidate or engineer in bioinformatics, computational biology, neuroscience, or a related field.
- Proficient in programming and data analysis, with experience in Python or MATLAB.
- Familiarity with image processing and analysis techniques, such as segmentation and feature extraction.
- Ability to work independently and collaboratively within a multidisciplinary team.
- Excellent communication skills in English (B2-C1 level) for scientific writing and presentations.
- Motivated and detail-oriented, with a keen interest in bridging computational and experimental neuroscience.

What We Offer:
- Training in animal handling and surgical techniques.
- Access to state-of-the-art equipment and facilities for conducting a variety of experimental methods.
- Collaborative work environment with experts in neurobiology.
- Opportunities to attend national and international conferences.
- Professional development training in scientific writing and other essential skills.

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The position will be available for 3 years, starting in January 2026. The gross salary will be in accordance with the French University scale.

To apply, please send your updated CV, a motivation letter, and contact information for at least 2 references to: olivier.pascual@inserm.fr.

Applications will be reviewed at the beginning of September.