

Internship Proposal Academic Year 2019-2020

1. Host team:

Research Unit (e.g. Department or Institute): CNRS CEA UMR 9199

Research Unit Director: Emmanuel BROUILLET

Research Team Director: Philippe Hantraye

Team name: Thérapies cliniques et précliniques des maladies neurodégénératives

Address : MIRcen

18 route du Panorama

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Supervisor of the Research Intern for this project:

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2. Internship project title:

Evaluation of astrocyte morphology in Tauopathies

3. Internship Description :

Tauopathies are neurodegenerative diseases characterized by the aggregation of Tau protein. These pathologies exhibit a wide variety of clinical and anatomo-pathological presentations, which may result from different pathological mechanisms. While in Alzheimer's disease it is essentially neurons which accumulate fibrillary tangles, glial inclusions in the shape of astrocytic plaques or tufted astrocytes are also observed in corticobasal degeneration and progressive supranuclear palsy respectively. However, to date, the mechanisms leading to the presence of tau aggregates in astrocytes have been little investigated. Furthermore, the functional consequences of such astroglial tauopathies are still unclear. The aim of this master project is to specifically study the impact of Tau astroglial pathology on the complex morphology of astrocytes. We have recently developed in vivo models of Tauopathies (d'Orange et al (2018) Brain) induced by local injection of AAVs expressing different Tau species in hippocampal neurons of adult mice. Besides pyramidal neurons, our preliminary data show that Tau species can also be found in a subset of hippocampal astrocytes. Using these models, the master student will perform immunohistological staining, confocal microscopy and 3D analysis of astrocytes to determine whether their morphology is altered when they contain different Tau species.

skills required for this project

The candidate should have some knowledge of neurosciences. Interest in animal experimentation and histology would be appreciated.

Location: our research center MIRcen,

<http://jacob.cea.fr/drf/ifrancoisjacob/Pages/Departements/MIRcen/plan-mircen.aspx> is located south of Paris, easily accessible by Tram or bus.

More about the hosting team:

<http://jacob.cea.fr/drf/ifrancoisjacob/Pages/Departements/MIRcen.aspx>