

Job title : PhD in molecular and cell biology

 36 months

 Début : 11/2024

 Paris

Fully funded 3-year PhD position in the team of Dr. Ralf JOCKERS, at Institute Cochin (Paris, France)

Description du poste / Job description

PhD Research project

Biosensors development to unveil the molecular mechanisms linked to Alzheimer's disease

We have recently developed highly sensitive biosensors to monitor tau conformational change and aggregation, which are key processes in the progression of several neurodegenerative diseases, known as tauopathies, including Alzheimer's disease. The project aims to further optimize and explore these biosensors to investigate: (i) the underlying molecular and cellular mechanisms governing tau aggregation, (ii) in vivo application of the sensor to monitor tau pathology in transgenic mouse models of tauopathies.

Main Activities

- The PhD student will use techniques of molecular biology to design and develop new biosensors, and cellular biology to express the sensors in a cellular context (neuronal and non-neuronal) and develop stable biosensor cell lines.
- Biosensor cells will be challenged with different stimuli to identify conditions that favor or impair the pathological conformational change or aggregation of tau. Biosensors will also be used to validate drug candidates suspected to interfere with tau aggregation/seeding.
- The student will also participate in the in vivo experiments of monitoring of tau aggregation by in vivo bioluminescence imaging.
- The main techniques to be performed by the student comprise: cell culture and cell signaling, molecular cloning, nanoluciferase complementation assay, western blot, confocal microscopy, in vivo bioluminescence, immuno-histology/cytology.

Expertise

- Experience in mammalian cell culture
- Experience in molecular biology and cell biology
- Experience in analysis of protein expression by western-blot and by immunofluorescence analysis of cells in confocal microscopy
- Experience in animal experimentation

Skills

- Excellent communication skills in English, orally and written.
- The team members are from a diversity of nationalities, thus, English is the most used language.

- Good organization and scientific rigor skills
- Curiosity and Motivation for scientific projects
- Ability to solve problems
- Team-oriented personality

Diploma level Master 2 diploma

Host structure

Team leader

The team “Functional pharmacology and pathophysiology”, is part of the Institute Cochin located in the center of Paris, 22 rue Méchain – 75014 Paris, France.

team leader: Dr. Ralf JOCKERS

The team is composed of approx. 15 collaborators and has a specific interest in identifying new therapeutic approaches for metabolic and neurodegenerative diseases. We are developing original Nanoluciferase complementation, BRET and TR-FRET cellular assays combined with photo-pharmacology and knockout and knockin mouse models. Our work is highly interdisciplinary, gathering molecular pharmacologists, biochemists, physiologists and chemists coming from all over the world.

<https://institutcochin.fr/equipes/pharmacologie-fonctionnelle-physiopathologie-recepteurs-membranaires>

About the structure

The Institute Cochin is a research center affiliated to INSERM, CNRS, Université Paris Cité, located in the heart of Paris. It has more than 600 members in 41 teams, dedicated to high-level biomedical sciences and assisted by 10 cutting-edge core facilities.

www.institutcochin.fr

Director

Florence Niedergang

Adresse

22 rue Méchain 75014 Paris, France

General Informations

Starting from: 01/11/2024

Duration 36 months
Renewable : OUI/YES NON/NO

Working time Temps plein/Full time - Temps partiel/Part time

Salary 2 135,00 € per month (gross salary)

How to apply

Application deadline 16/09/2024

To apply

Candidates should send their CV, letter of motivation and reference letter(s) with contacts to:

- Erika Cecon
- Email : erika.cecon@inserm.fr