

SwitchNeuroTrail

POST-DOCTORAL POSITION ON THE SUBJECT OF AXONAL BRANCHING ON SWITCHABLE MICROPATTERNS

Institut Curie/Institut Pierre-Gilles de Gennes & IBENS-Ecole Normale Supérieure,
Paris

Recent advances for the morphological control of axo-dendritic polarity and in dynamic tuning of cellular shapes open new perspectives in the study of neuronal branching. In addition, the tracking of single molecules and super-resolution imaging tools have revolutionized our ability to follow molecular events in living cells on the nanoscopic scale. In this context, the aim of the SwitchNeuroTrail project is to decipher the mechanisms of branch formation and retraction using a spatio-temporal control of cell shapes imposed by switchable adhesive surfaces (in collaboration with Christophe Tribet, ENS-Chimie). We aim in particular to study the ultrastructure and the dynamics of the cytoskeleton at spatially controlled points of junction at axonal or dendritic branches.

We are seeking a candidate to work on the biophysical and cellular aspects of this project to address the following research aims :

1. Building reconfigurable *in vitro* oriented neuronal networks at the single cell resolution.
Objective : fabrication of switchable adhesive micro-patterned substrates using micro-fabrication tools (photo-lithography, soft lithography). This part of the project will be conducted at the Institute Curie/ Institut Pierre-Gilles de Gennes for Microfluidics, Paris. <http://curie.fr/>, <http://www.institut-pgg.fr/>
2. Resolving the dynamic rearrangements of the cytoskeleton during branching and pruning on the nanoscopic scale.
Objectives : Development of molecular probes for super-resolution imaging, ultra-structural PALM imaging, molecular dynamics at branching points using single particle tracking (sptPALM) of e.g. individual actin monomers and plus-end capping microtubule-associated molecules. This part of the project will be carried out at the Institute of Biology of the ENS (IBENS), Paris. <http://www.biologie.ens.fr/depbio/>

Applications should include the following documents :

- A cover letter, stating your research interests and relevant qualifications
- A Curriculum Vitae, including a full publication list and the contact details of three academic referees

Deadline for applications : January 15th, 2016

Start date : March 2016, May 2016 at the latest

The net annual salary will be indexed on the postdoctoral researcher scale. The position will be funded for 18 months with the possibility of extension.

For further information and to submit applications, please contact :

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