DOCTORAL POSITION IN CELL BIOLOGY-MECHANOBIOLOGY

UMRS 839 INSERM/UPMC
Institut du Fer à Moulin - 17 rue du Fer à Moulin - 75005 Paris

A Doctoral position will be available starting October 1st 2012 in the "**neuronal cell adhesion and migration**" team headed by René Marc Mège and Christine Métin at Institut du Fer à Moulin (IFM), Paris.

How cells sense and respond to external mechanical forces is important in normal development and for the maintenance of cell and tissue homeostasis, but remains a poorly understood problem. The overall objective of the thesis project will be to study mechano-transduction at cadherin-mediated cell-cell contacts with the aim to understand how cadherin adhesion receptors transduce mechanical forces across groups of cells, as well as to determine the impact of this mechano-transduction on neuronal precursor fate and neuronal differentiation. This interdisciplinary project will be conducted in close collaboration with B. Ladoux's group (MSC lab, CNRS-Université Paris 7). It will combine cell culture, micro-fabrication techniques, molecular and cellular biology, dynamic cell imaging, biochemistry and traction force microscopy.

RM Mège's group brought many contributions to the determination of the mechanisms of formation of cadherin-based cell-cell contacts, cell responses to cadherin engagement and associated signalling in neuronal and non-neuronal cells. In collaboration with the group of physicists headed by Benoit Ladoux, they demonstrated that cadherin adhesions transmit and adapt to mechanical stress in a rigidity dependent manner opening a new interdisciplinary axis or research. Together, they are currently studying the molecular and cellular mechanisms responsible of this mechano-sensitivity and its impact on multicellular assemblies.

Requirements and position details:

Doctoral fellowship will be available **starting 2012, October 1st** for **3 years** (HFSP-funded).

Master 2 in biochemistry and/or cell and molecular biology or biophysics.

High motivation and strong interest and willingness to interact in an interdisciplinary environment.

Location:

Institut du Fer à Moulin (http://www.u839.idf.inserm.fr/) comprises 10 research teams working in the field of the development and plasticity of the nervous system from the molecule to integrated animal behaviour, but also on basic Cell Biology questions related to neuronal and cancer cells migration, ie. cytoskeleton and cell adhesion crosstalk. The Institute is equipped of state-of-the-art technical facilities: microscopy and cell imaging facilities, animal house, biochemical and molecular technical facilities. The Institute is located close to other Institutes or research centres (accessible by walking): Jussieu campus, Ecole Normale Supérieure, Institut Curie and Institut Pasteur.

Application:

Applicants should send cover letter, CV, and referee's contact information to René Marc Mège , Rene-Marc.Mege@inserm.fr , tel: 33 (1) 45 87 61 48.