Dynamics of Intracellular Organization

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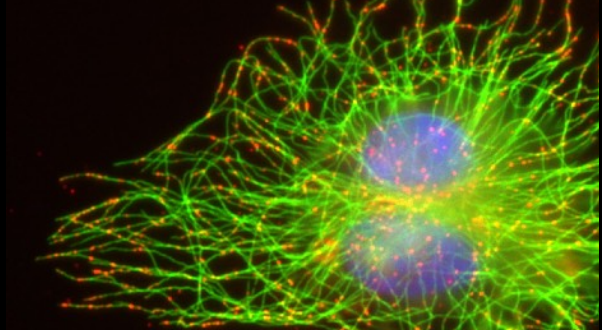

Open PhD position

A position is open to a PhD student in the frame of the **IC-3i international PhD Program** of the Institut Curie.
The call aims at recruiting motivated international students for PhD positions starting on **October 1st, 2018**. - Applications can be sent until **January 25th 2018** (last deadline)

Apply on the web : http://training.curie.fr/ic3iphd

Project:

Synchronizing transport from the plasma membrane to the endoplasmic reticulum : new assays, new questions, new applications

Mammalian cells are characterised by the co-existence of multiple pathways both in the anterograde direction, from the endoplasmic reticulum (ER) to the endosomal system and the plasma membrane, and in the retrograde one, back to the ER. Most of these pathways cross the Golgi complex which plays an essential role in sorting and processing cargos.
In the recent years, the laboratory has developed a novel system, the RUSH system, which enables the systematic analysis of the anterograde secretory routes. It allows to synchronize the transport of a large variety of cargos from the ER to downstream compartments. It is amenable to real time imaging, biochemical quantification and screening. With this system we could uncover the diversity of anterograde secretory routes, analyse the impact of changes in cell physiology on cargo secretion and screen for perturbing siRNA or small molecules.
We will now tackle the question of the retrograde pathway and set-up a synchronized assay adaptable to diverse cargos. This will complement the existing assays (e.g. based on toxin transport) and allow us to get a more comprehensive picture and identify regulatory factors.
We will then use both the anterograde and retrograde assays to challenge theoretical models of Golgi- dependent transport and in particular test whether opposite flows can cross the same Golgi complexes and what are the effect, predicted by the theory and observed, of Golgi organization, dynamics and function.

The Institut Curie
Founded in 1909 on a model devised by Marie Curie: ``from fundamental research to innovative treatments", Institut Curie is a cancer foundation. It specializes in fundamental research and in research in oncology and patient care. Institut Curie has 3 400 researchers, physicians, clinicians, technicians and administrative staff. More than 80 groups work for the Institut Curie Research Centre, divided into 14 research units associated with the CNRS, Inserm, and universities. These groups are made up of biologists, chemists, physicists, bioinformatics specialists, and physicians. Cooperating across disciplines, they strive to understand the complex workings of cells in order to advance cancer prevention, diagnosis, and treatment.