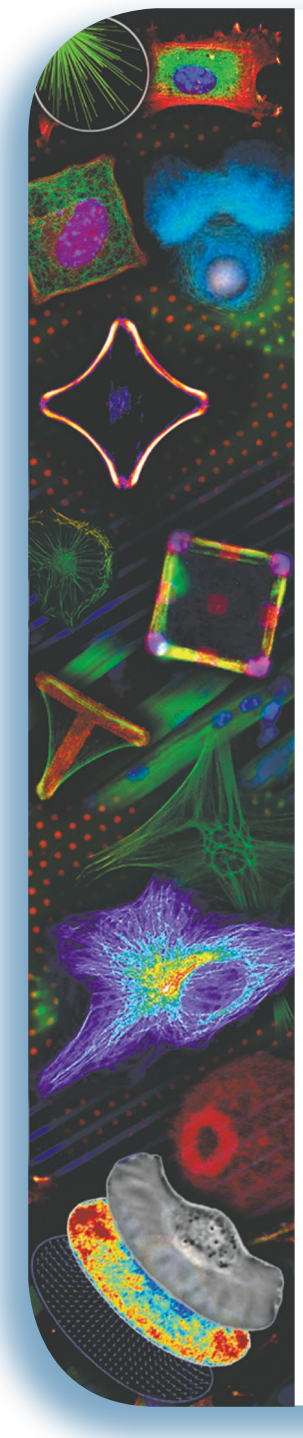

As part of our "Nano & Micro-envirmonments for Cell Biology" seminar series, we are delighted to invite you to attend this seminar to be given in english by :

Bruno HUMBEL

Electron Microscopy Facility
University of Lausanne (Switzerland)

Friday 1 February 2013
2pm

Correlative Light and Electron Microscopy

Amphithéâtre M001 - Ground floor
Ecole Grenoble INP Phelma - site MINATEC
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Correlative Light and Electron Microscopy

Cells can be seen as individuals that have each their own characteristics. In general, however, for research on specific functions, cells are cultivated in Perti dishes and are expected to respond all in the same manner to a certain stimulus. In fact standard biochemical and molecular biological experiments provide us with an averaged mean value of all the possible reactions.
Microscopy has the big advantage that individual cells can be analysed. To do this, however, the cell of interest must be identified and found. Light microscopy allows for a fast scan of a specimen and, hence, identification of the cell under investigation. Electron microscopy allows for high resolution analysis of this individual cell. Of course one can argue that super-resolution light microscopy is superseding electron microscopy and for many applications it is the method of choice. On the other hand light, in this case fluorescence microscopy can only establish relationships between labelled molecules, whereas electron microscopy has the complete cell morphology as a reference. In addition the resolution is still higher.
There are several methods to combine the benefits of the two microscopes. With a fluorescence microscope the labelled cell is identified and even an active cellular process can be followed. Then the cells are fixed and prepared for electron microscopy. With a fluorescence image as a map the cell can be found back in the electron microscope. Fluorescently labelled structures can be identified on a section and then again with the map the individual cell can be further analysed by electron microscopy. With a correlative approach cell biology can enter a new dimension to study single cells in their natural environment, in the tissue.

In my talk I will address the different approaches of correlative microscopy we chose.

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