Dear colleagues,

We're delighted to announce our next seminar, to be given by **Maryam TABRIZIAN** (Biomedical Engineering Department at McGill University - Montréal (Canada) & Visiting professor, École Centrale de Lyon) :

Enabling technology for label-free detection, separation, patterning and in vitro culture of cells

Tuesday 16 July 2013 at 2pm
Amphi M001 – Phelma MINATEC
3 Parvis Louis Néel – 38000 Grenoble

With the advances in miniaturization, Lab-on-Chip devices have started to play an important role in detection and enrichment of rare cells for both clinical diagnostics and fundamental research. Among various approaches used, implementation of label-free methods is a suitable option for cell separation, since they do not alter the properties of target cells for further use.

During this seminar, the focus will be on the development of two main label-free methods, namely size-based and adhesion-based for separation of target cells. For the first approach, a multilayered, fully thermoplastic-based microfluidic chip was designed and fabricated for high-throughput size-based separation of micro/nano particles and cells. As for the second, multiplex covalently attached microarrays and gradients of biomolecules are produced and embedded inside a single microfluidic chip. The bio-functional interfaces are then embedded in an adhesion-based microchip to simultaneously capture, separate, pattern and culture primary and rare cells in vitro. Using this chip, oligodendrocyte progenitor cells and cardiomyocytes can be separated from rat brain and heart tissues, respectively with greater than 95% separation efficiency in 10min. Separated cells can be cultured on the same chip for different subsequent applications. Successful separation of two dissimilar primary cells, in terms of biological properties and initial population, from their respective mixture, is a demonstration of capability of developed microfluidic platforms towards efficient separation of various cell types.