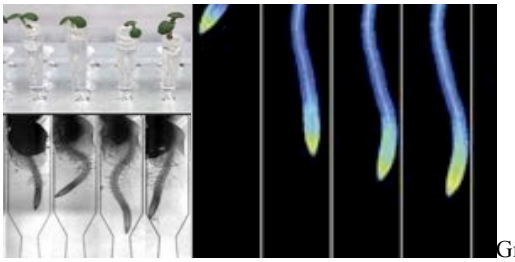
Position in microfluidics and fluorescent nanosensors

A position is open at the Institute for Integrative Biology of the Cell in Gif-sur-Yvette (I2BC, http://www.i2bc.paris-saclay.fr/) for engineers, PhD candidates or postdoctoral fellows. This position is funded in the context of a collaborative project with the Laboratory of Excellence Saclay Plant Sciences (https://www6.inra.fr/saclay-plant-sciences_eng/), with the goal to develop new tools and approaches in plant cell biology. A major challenge in cell biology is the development of technologies that allow the quantitative monitoring of cellular responses with a high resolution over a wide range of time scales. To dynamically image cellular events in vivo, it is essential to maintain the sample alive in non-stressful conditions under the microscope. Microfluidic chips allow living organisms or cells to be grown in micro-chambers on a microscope stage, under perfusion with a desired medium. In collaboration with the Hydrodynamics laboratory of the Ecole Polytechnique (LadHyX), the candidate will design and produce microfluidic chips dedicated to plant cell imaging, using soft lithography. In a second step, the candidate will implement the microfluidic chip technology to address the mechanisms of chloride and heavy metal toxicity in Arabidopsis roots. To do so, s-he will use plants expressing genetically encoded nanosensors that report chloride or zinc concentrations in cells. This project is expected to favor the development of novel powerful tools for plant cell biology, and to provide new insights into the mechanisms by which plant cells tolerate excess chloride and heavy metals.


Grossmann *et al, 2011*

References

Grossmann G, Guo WJ, Ehrhardt DW, Frommer WB, Sit RV, Quake SR, Meier M. (2011) The RootChip: an integrated microfluidic chip for plant science. **Plant Cell**. 23(12):4234-40.

Jones AM, Grossmann G, Danielson JÅ, Sosso D, Chen LQ, Ho CH, Frommer WB. (2013) In vivo biochemistry: applications for small molecule biosensors in plant biology. **Curr Opin Plant Biol**. 16(3):389-95.

Lanquar V, Grossmann G, Vinkenborg JL, Merkx M, Thomine S, Frommer WB.(2014) Dynamic imaging of cytosolic zinc in Arabidopsis roots combining FRET sensors and RootChip technology. **New Phytol.** 202(1):198-208.

Profile

The candidate should have a training in engineering for microscopy and/or microfluidics. Applicants with a Master or a PhD degree are eligible. S-he should be highly motivated to design, build and test innovative tools based on microfluidics. S-he should be ready to interact with a multidisciplinary network of laboratories and should have an interest for entrepreneurship in the field of innovation.

Salary: according to experience and skills
Starting date: from October to December 2016.
Applications: a CV, a statement of interest for the project and contact information for 2 references should be sent to Sébastien THOMINE (sebastien.thomine@i2bc.paris-saclay.fr) before August 1, 2016.