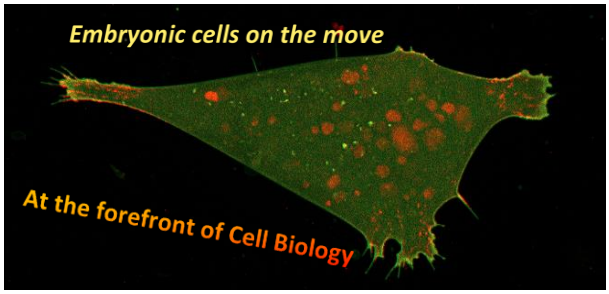

CRBM
Centre de Recherche en Biologie cellulaire de Montpellier

PhD project "Cell adhesion and actin cytoskeleton dynamics in embryonic tissue remodelling"

The team "**Cell adhesion and migration in embryonic development**" is looking an **outstanding PhD candidate** to participate to our project on tissue plasticity using Xenopus gastrulation as model system. The selected candidate will apply for a studentship at the Montpellier CBS2 Doctoral School.

Background

Gastrulation of the Xenopus embryo is one of the best models to study morphogenesis, i.e. the process that allows the shaping of the different regions of the embryo in order to build the complex organization of the future organism. Our goal is to understand the cellular basis of this process, more specifically the regulation of the dynamics of the cell adhesion molecules and of the actin cytoskeleton. We take advantage of the unique possibilities offered by the Xenopus model to study whole tissues as well as their isolated cells. We use a multidisciplinary approach, combining a variety of state-of-the-art techniques in cell biology (high-resolution live microscopy), biophysics (micropatterns and force measurements), and computer simulation.

The project will focus on understanding the differential regulations in the ectoderm, which is a stiff tissue with low motility, and the mesoderm, which is the prototype of an "invasive" tissue. Depending on the candidate background, two projects will be proposed: 1) The role of recently identified candidate regulators of the actin cytoskeleton in inducing the migratory properties of the mesoderm. 2) The mechanisms responsible for remodelling adhesive contacts during collective cell migration.

The team benefits of exceptional conditions at the CRBM, in particular with direct onsite access to a world-class imaging facility, and an excellent scientific environment, including several other teams experts on adhesion and cytoskeleton.

Requirements

The candidate should have a **strong academic record**, good knowledge of experimental techniques in **Molecular Cell Biology** and/or **Biophysics**, and be passionate about Cell Biology. The project requires good manual skills since the experiments involve microinjections and microdissection of embryonic tissues.

Selected publications

- Kashkooli L., Rozema D., Espejo-Ramirez L., Lasko P., Fagotto F. Ectoderm to mesoderm transition by downregulation of actomyosin contractility. bioRxiv 870444
- Canty L., Zarour E., Kashkooli L., François P. and Fagotto F. (2017) Sorting at embryonic boundaries requires high heterotypic interfacial tension. NATURE COMM. 8, 157.
- Rohani N., Winklbauer R. and F. Fagotto. (2014) Ectoderm-mesoderm separation is controlled through selective repulsion generated by specific pairs of ephrins and Eph receptors. PLOS BIOLOGY 12, e1001955.
- Maghzal N., Kayali H.A., Kajava A.V. and F. Fagotto. (2013) The tumor-associated protein EpCAM controls Erk signaling, actomyosin contractility and cell-cell adhesion by directly inhibiting PKC. DEVELOPMENTAL CELL 27, 263-277.
- Fagotto F., Rohani N., Touret A.-S., Li R. (2013) A molecular base for cell sorting at embryonic boundaries: contact inhibition of cadherin adhesion by ephrin/Eph-dependent contractility. DEVELOPMENTAL CELL 27, 72–87.

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Deadline for applications: 14 April 2020