

Master 1/2 internship 2025-2026 in Cell Biology/Developmental Biology: Understanding collective tissue invasion using a vertebrate gastrulation model

Fagotto team, Cell adhesion and migration <https://www.crbm.cnrs.fr/francois-fagotto/?lang=en>

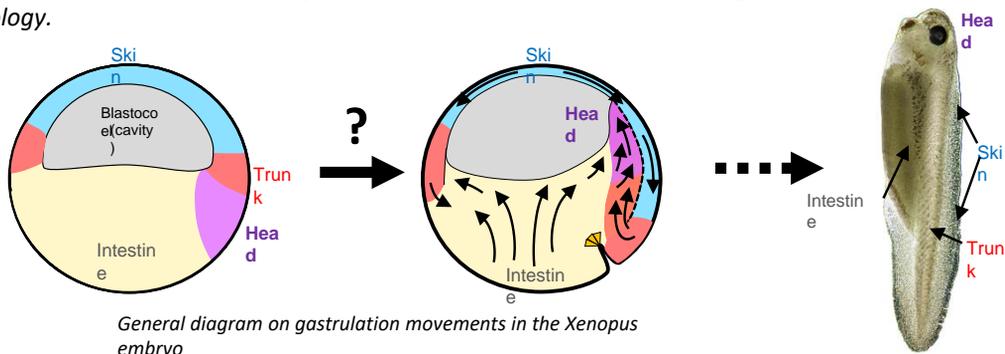
We are looking for an outstanding, highly motivated, science-driven student with strong background in Cell Biology to contribute to our research on the regulation of cytoskeleton dynamics and cadherin cell-cell adhesion in the highly migratory tissues.

Background

Embryonic development involves large scale tissue remodelling in order to build the various body structures. One of the major event is gastrulation. During this process, the mesoderm tissue invades the inside of the embryo (purple and red in the diagrams below) to produce the head-trunk organisation of the future animal (here an amphibian, but the same process also takes place all animals, incl. humans).

These movements are driven by the specific cell adhesive and migratory properties, which in turn are dictated by a fine regulation of the actin-myosin cytoskeleton. **The internship project will contribute to characterize the corresponding network of regulatory genes and its impact at the cellular and tissue level.**

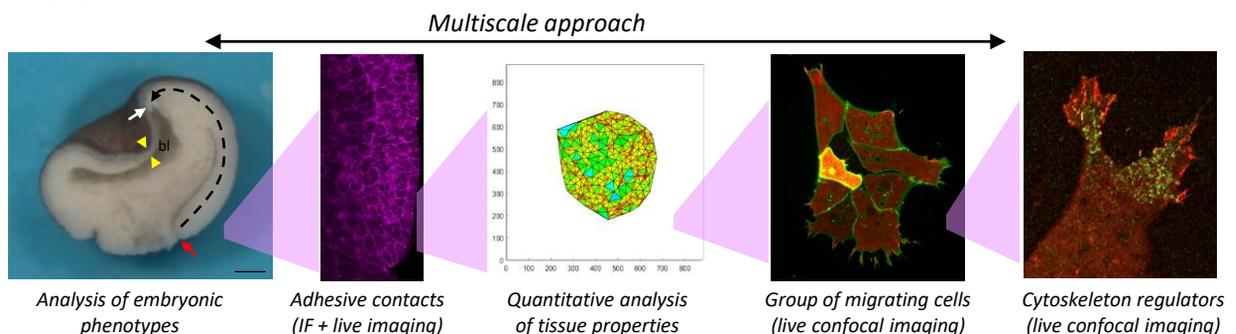
Mesoderm migration bears strong similarities with collective invasion, central to cancer metastasis. What we learn from the embryo in terms of cellular behaviour and of molecular regulation is thus directly relevant for pathology.



Experimental approach

The *Xenopus* embryo is a unique model that allows fast and easy molecular manipulations through microinjection, and in vitro analysis through microdissection of tissue explants (“gastruloids”) and of isolated cells (these techniques can all be learnt during a Master internship).

We exploit this system to perform a multidisciplinary/multiscale analysis, in particular through high resolution imaging of fixed and live samples, also complemented with biophysical measurements.



Applicant requirements

Top academic record - Strong background in Cell Biology - Knowledge in Developmental Biology is a plus but not an absolute requirement Potential interest in pursuing academic research (PhD thesis)

Application should be sent to: francois.fagotto@crbm.cnrs.fr

Publications: <https://www.crbm.cnrs.fr/francois-fagotto/?lang=en#toggle-id-3>