PostDoctoral Position 2018,

team of Anne-Cécile Reymann,
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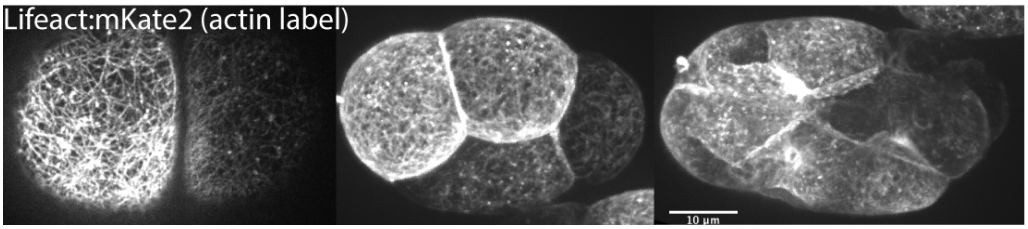
Probing the actin cortical identity of the early founder cells of a developing embryo.

Goal: Elucidate cortical nucleation capacities in single cells in a living embryo.

Actin is nucleated at the cell cortex during the fertilization process. This cortex is then never fully disassembled but remains dynamic throughout cell cycles. Initially assembled from maternally provided proteins, it is then inherited by daughter cells throughout the divisions. Asymmetries in division are keys regulators of cell fate determination of the founder cells of the different lineages i.e. blastomeres differentiation and embryo's polarity establishment.

Is the cell cortical machinery equivalent in all the blastomeres of the early *C. elegans* embryo and how does it evolve differently to shape the embryo? To address this question, the successful applicant will develop high-resolution quantitative *in vivo* measurements across scales from molecules-to macroscopic material and perform numerical simulation. S/he will in parallel develop a novel microfabricated device in order to produce single cell extracts and directly use this molecular content for actin *in vitro* polymerization assays using actin nucleating micropatterns.

We are seeking a highly motivated scientist with prior experience in cell biology or biophysics/biochemistry. Experience in quantitative fluorescence microscopy, image analysis and/or microfluidics is a plus. The candidate should be very creative and ready to work in an interdisciplinary team. Prerequisite: at least one first author paper in a related research field to the project.



Keywords: Cellular cortex, Actin cytoskeleton dynamics, Morphogenesis, Biochemistry, Microfabrication, Biophysics, *in vitro, in vivo, C. elegans.*

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