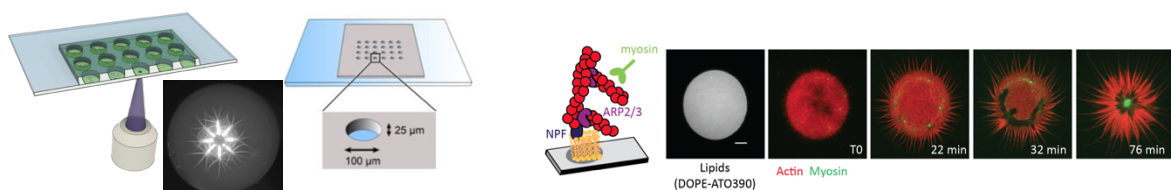


## Master 2 and PhD Offer : *In vitro* reconstitution of a contractile network in cell-sized confinement

A Master 2 position is available in the Cytomorpholab in Grenoble, (<http://cytomorpholab.com/>) with the possibility of doing a thesis afterwards starting in october 2022.

Actomyosin contractility is a highly dynamic process that affects many fundamental biological processes at the molecular, cellular and multicellular levels. Contraction in cells is ensured by myosin molecular motors that exert forces on actin filaments. This active process is complex, in part because actin filaments are often at a dynamic steady state, constantly assembling and disassembling, which results in the reorganization of the contractile network. To understand the basic principle of this active process, we proposed to reconstitute a dynamic contractile network (where actin dynamics is in a permanent turnover) *in vitro* in a cell-sized compartment.

To that aim, the PhD student will manufacture cell-sized microwells to impose 3D boundaries to his/her experimental system and control precisely the finite biochemical composition of the system. In the line of the pioneering work of the cytomorpholab using micropatterned substrates to control the growth of actin filaments and study the role of architecture on network contraction and disassembly, the student will study the dynamic self organization of contractile actomyosin networks generated from lipid surfaces in a cell-sized environment.



Branched actin network contraction on 2D lipid micropattern

Actin assembly in microwells

The selected student will have a unique opportunity to be part of an internationally renowned team, working in a creative and lively environment, providing access to state of the art techniques (microfabrication techniques, advanced microscopy, biophysics).

We are looking for young scientists with a strong interest in academic research and interdisciplinary projects. Highly motivated candidates are encouraged to apply by sending their CV and motivation letter to Laurent Blanchain ([laurent.blanchain@cea.fr](mailto:laurent.blanchain@cea.fr)), Manuel Thery ([Manuel.thery@cea.fr](mailto:Manuel.thery@cea.fr)).

Selected publications from the team :

Reymann, Nat. Mat., 2010

Reymann, Science, 2012

Gressin L., Current Biol., 2015

Ennomani, Curr Biol., 2016

Boujemaa-Patersky, Nat. Comm., 2017

Colin A., Current biol., 2018

Manhart, Icheva, Elife, 2019

Senger, J. Cell Sci., 2019

Schaedel L., Nat. Physics, 2019

