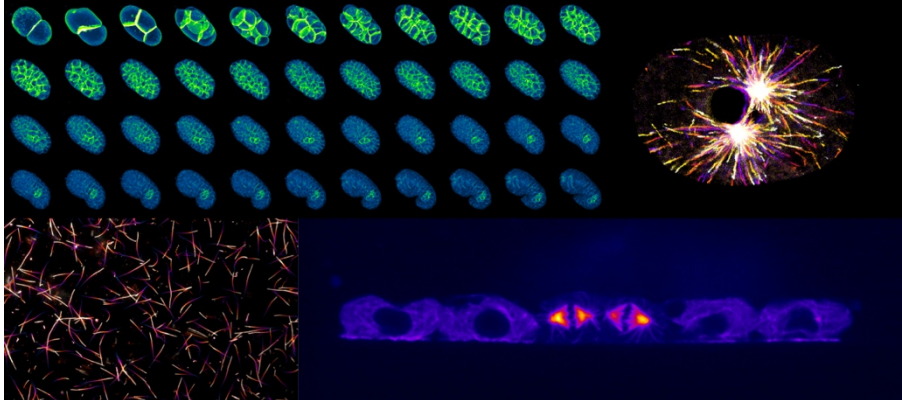


## 2027 Internship Offer

**Master 1:** NO – Duration:

**Master 2:** YES – Duration: 6 months

Team, Contact	CRBM: Benjamin LACROIX, benjamin.lacroix@crbm.cnrs.fr
Title	Temporal and spatial control of cytoplasmic organization during mitosis
Research Themes and questions	<p>Our global and fundamental aim is to understand how cell measure their size and control their timing to ensure that organelles assemble at the right time and of the right size?</p> <p>We are specifically focused on microtubule cytoskeletal reorganization during mitotic progression.</p> <p><u>Key words:</u> cell cycle, mitosis, microtubules and mitotic spindles          cytoplasmic physical properties, metabolism</p>
Methods and experimental approaches	<p>Our methodologies are based on state-of-the-art live imaging using spinning disk confocal microscopy or TIRF microscopy in close relationship with the imaging platform MRI (Montpellier Ressources Imagerie). Our <i>in vivo</i> experiments are performed <i>in situ</i> using <i>Caenorhabditis elegans</i> also non-model organism especially marine embryos like sea urchin, starfish or jellyfish embryos. These <i>in vivo</i> approaches are coupled to <i>in vitro</i> reconstitutions performed in cell-free metabolically active cytoplasmic <i>Xenopus</i> egg extracts which allow to recapitulate all cytoplasmic reactions and mitotic phases <i>in vitro</i>.</p>
Illustration	

## 2-3 Publications

Chenevert, J., M.L.V. Robert, J. Sallé, S. Cacchia, T. Lorca, A. Castro, A. McDougall, N. Minc, S. Castagnetti, J. Dumont, and B. Lacroix. 2024. Measuring Mitotic Spindle and Microtubule Dynamics in Marine Embryos and Non-model Organisms. *Methods Mol Biol.* 2740:187–210. doi:10.1007/978-1-0716-3557-5\_12.

Lacroix, B., G. Letort, L. Pitayu, J. Salle, M. Stefanutti, G. Maton, A.M. Ladouceur, J.C. Canman, P.S. Maddox, A.S. Maddox, N. Minc, F. Nedelec, and J. Dumont. 2018. Microtubule Dynamics Scale with Cell Size to Set Spindle Length and Assembly Timing. *Dev Cell.* 45:496-511 e6. doi:10.1016/j.devcel.2018.04.022.

Lacroix, B., S. Vigneron, J.C. Labbé, L. Pintard, C. Lionne, G. Labesse, A. Castro, and T. Lorca. 2024. Increases in cyclin A/Cdk activity and in PP2A-B55 inhibition by FAM122A are key mitosis-inducing events. *EMBO J.* 43:993–1014. doi:10.1038/s44318-024-00054-z.