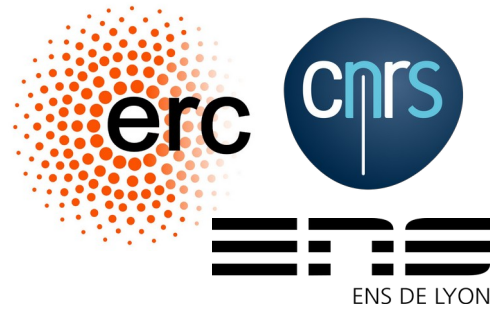


Job announcement

A 3-year post-doctoral position is open in the team **Morphogenesis of Brown algae**, at the Institute for Functional Genomics of Lyon (IGFL, ENS-Lyon, France) in the frame of the ERC-Adv project “ALTER e-GROW” (2023-2028).



General topic of the 5-year ERC project « ALTER e-GROW »:

The overall aim of the project is to identify the factors that control the change in the orientation of cell division during the development of brown algal embryos. The project begins with the quantitative 3D mapping of cellular factors such as cell shape, cell mechanics and intracellular components during 3D tissue formation in the embryos of four brown algae, and this is the aim of this post-doctoral contract. The cellular data will then be used to simulate changes in the orientation of cell division in the tissues of brown algae, as a function of the mechanical forces at play (simulation work done by other members of the team). More [here](http://igfl.ens-lyon.fr/equipes/b.-charrier-morphogenese-des-algues-brunes/morphogenesis-of-macroalgae?set_language=en&cl=en) (http://igfl.ens-lyon.fr/equipes/b.-charrier-morphogenese-des-algues-brunes/morphogenesis-of-macroalgae?set_language=en&cl=en).

What are your work objectives ?

The objective is to map cellular parameters like cell shape, cell mechanics factors (e.g. cell wall organisation) and intracellular components (e.g. nucleus, microtubules, actin filaments, centrosomes, molecular motors) during the formation of 3D tissues in brown algae embryos. Technically, the work involves *in vitro* cultivation of algal material (under sterile conditions), production of algal embryos, inoculation in microfluidic chips, embryo labelling with vital stains, chemical treatments, laser ablation and microinjection. The algae will then be monitored for several days under living conditions using accurate cellular imaging techniques involving confocal, two-photon and light-sheet microscopy, followed by quantitative image analysis.

Who are you ?

You have a developmental biology background and interest in embryogenesis, tissue patterning and mechanobiology of all sorts of multicellular organisms, but preferably of non conventional models like algae, plants, fungi or unconventional metazoans. Knowledge of the diversity of life cycles will be a plus, as the algae are grown and reproduced in the lab. You have a PhD and potentially some post-doctoral experience with a solid background in confocal microscopy of living multicellular organisms, and you are familiar with quantitative imaging approaches and analyses.

Overall, as the project is technically challenging, you are equipped with a high degree of autonomy, initiative and a pronounced taste for exploring and developing new methods, in addition to a boundless curiosity for unexplored biological mechanisms.

Whom are you going to work with ?

The "Morphogenesis of brown algae" group focuses on understanding the morphogenesis of brown algae, with a strong appetite for mechanical modelling approaches, which are themselves hungry for quantitative cell biology data. Therefore, to feed the model, we have

recently developed functional imaging tools including time-lapse/light-sheet microscopy, microfluidics (doi: 10.3389/fmars.2021) and laser ablation (doi:10.3791/63518) to monitor the development of algal embryos. All facilities for confocal, bi-photon and light-sheet microscopy, image analysis and algal cultivation are provided on site.

In the past 15 years, our group has gambled on brown algae as unique organisms with an original evolutionary trajectory independent of plants and animals, in order to identify novel mechanisms of multicellular development. Some examples in Theodorou & Charrier, *Development* 2023 (doi.org/10.1242/dev.201519), Rabillé et al., *PLoS Biol* 2019 (doi.org/10.1371/journal.pbio.2005258), Coudert et al., *Curr Biol* 2019 (doi:10.1016/j.cub.2019.09.021).

Where ?

The Institute of Functional Genomics of Lyon (IGFL; <http://igfl.ens-lyon.fr/igfl/presentation-igfl>), based on the campus of the Ecole Normale Supérieure de Lyon (ENS-Lyon), in the city of Lyon in Mid-south-east France, devotes all its energy in the study of the evolution of developmental and physiological mechanisms with a strong focus on integrative, organism-level research using a diversity of model and non-model organisms.

The institute is composed of 13 research teams (11 at present and 2 more in September 2024) sharing a common vision of science and interest in integrative and multidisciplinary experimental approaches empowered by scientists with diverse profiles and expertise (development, cell biology, molecular biology, evolution, physiology, computational biology and physics). This multidisciplinary diversity makes the IGFL a unique and highly stimulating research environment.

Annual salary :

Annual salary is between 28 k€ and 40 k€ net (including health and unemployment insurance) depending on experience (from 0 to 7 years post-PhD experience).

Interested? what to do now :

Please send to benedicte.charrier@cnr.fr (indicate topic « post-doc application ») a 2-page CV and a 1-2 page letter describing your current or past research projects in developmental biology, highlighting your experience in imaging (acquisition and analysis), microinjection if applicable, and other cell biology techniques. Please describe your motivation for this position and add your publication list (including papers in preparation; will remain confidential), your two most significant publications (PDF ; not necessarily those with the highest impact factor) and your two most supportive contacts, as reference.

Agenda :

- Deadline for application : 20 March 2024
- Selection for interview : 22 March 2024
- Interview : 1 April 2024
- Final selection : 2-4 April 2024
- Position starting date: 1 June 2024