

Starting September 2016

PhD environment: Cherry Biotech and strong academic collaborations

Cherry Biotech is a young and innovative start-up created by a multidisciplinary team of researchers in microfluidics and biology. **We develop and commercialize instruments for life sciences and healthcare.** We aim at becoming a major in organ-on-chip instrumentation for diagnosis and clinical applications. Based in Rennes, Brittany, we closely collaborate with academic teams to benefit from basic and crucial feedback in order to develop relevant and optimal devices for cellular control.

The first highly innovative device developed by our team in collaboration with the Institut Curie and the ENS (Paris) is a **dynamic temperature controller for live-cell imaging**. We broke down temperature range barriers [the system covers the 5 to 45°C] and shift speed limitations [10 seconds shifts] by applying the very high and efficient surface/volume ratio of microfluidics to microscopy. Temperature is the first step, next devices must include other parameters such as:

- drug injection to address key biological processes that can be blocked by a molecule.
- medium renewal/injection to allow very-long term imaging of cells

This will be the objective of the highly motivated PhD candidate...a novel PhD thesis model for disruptive innovations: an entrepreneurship PhD program supported by the first-class H2020 ITN program DivIDe. At the frontier of biology and physics.

Research context

Live-cell imaging is becoming a more and more powerful way to analyze biological processes in real-time. Many cellular processes answer to environmental parameters (osmotic parameters, temperature, drug effects...). Among them, cell division and cell cytoskeleton are known to be temperature-dependant. The DivIDe consortium recognizes that scientists have built a good understanding of many principles underlying cell division, but wants to ask: "Do we have a sufficiently comprehensive understanding of this process to build and combine its molecular machinery to obtain "alive-like" molecular behaviours? Can we reproduce the molecular mechanism of spindle assembly and maintenance, kinetochore attachment and stabilization, spindle reorganisation during anaphase, and cytokinetic abscission?" This is DivIDe's ambition. Building a synthetic approach to cell division will contribute in the future to tackling these problems with innovative solutions.

PhD student role and missions

In this context, the candidate will have to (1) Understand our systems and be ready to improve them on a science-feedback basis, (2) Identify relevant biological applications in the consortium, (3) Build tight collaborations in order to (4) Implement or develop our technologies to the benefit of identified issues. For instance, the use of certain animal models rises mechanical considerations which need to be implemented in our current temperature controller. In addition, temperature must be coupled to other parameters such as medium actuation, drug gradients...supporting the need to modify, adapt and develop our current technologies.

Profile

We are looking for highly motivated candidates interested in entrepreneurship, CAD, lab-on-chips, biology, who want to dedicate themselves to scientific development in innovative start ups. The ideal candidate would have an excellent background in electronics, computer and mechanical engineering, a good knowledge of a CAD software (Solidworks, Catia...) and of Labview. She/he would have a high interest in multidisciplinary fields projects (biology, microscopy, microfluidics), start-up business models, marketing and team-working.

Excellent writing and communication skills in English are mandatory.

To apply for the proposed Thesis, and in order to meet the specific requirements of the funded PhDs, the candidates must not have resided or carried out their main activity (work, studies...) in France for more than 12 months in the last 3 years.

Candidates must have a UE passport or a passport of one of the project associated countries, listed here:

ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/3cpart/h2020-hi-list-ac_en.pdf

Candidates must have a MSc degree or obtain a MSc degree by August 2016.

Conditions

The successful candidate will be employed for 3 years and receive a financial package plus an additional mobility and family allowance according to the rules for Early Stage Researchers (ESRs) in an EU Marie Skłodowska-Curie Actions Innovative Training Networks (ITN):

- Living allowance – 3035.36€ (per month)
- Mobility allowance – 600€ (per month)
- Family allowance – 500€ (per month – if applicable)

This amount is a gross contribution to the salary costs. Net salary will result from deducting all compulsory social security/direct taxes from the gross salary according to the law applicable to the agreement concluded with the ESR.

To apply

The candidates must provide a cover letter, a resume, and 2 references, including the scientist who mentored the candidate during her/his master studies.

Mail at jobs@cherrybiotech.com

Deadline: August 2016.



Project participants

Institut Curie (France), EUVITRO S.L.U. (Spain), The Francis Crick Institute Limited (UK), Max Planck Gesellschaft Zur Foerderung Der Wissenschaften E.V. (Germany), Lead Discovery Center GmbH (Germany), Technische Universitaet Dresden (Germany), European Molecular Biology Laboratory (Germany).

Project details here: cordis.europa.eu/project/rcn/198109_en.html

