PhD Position
Temperature Sensing in Arabidopsis - role of EARLY FLOWERING 3

SECTOR: Higher Education Institution

LOCATION: France, Grenoble

RESEARCHER PROFILE:

□ First stage researcher,

INSTITUTION: Univ. Grenoble Alpes, University of Innovation

One of the major research-intensive French universities, Univ. Grenoble Alpes**1 enjoys an international reputation in many scientific fields, as confirmed by international rankings. It benefits from the implementation of major European instruments (ESRF, ILL, EMBL, IRAM, EMFL*2). The vibrant ecosystem, grounded on a close interaction between research, education and companies, has earned Grenoble to be ranked as the 5th most innovative city in the world. Surrounded by mountains, the campus benefits from a natural environment and a high quality of life and work environment. With 7000 foreign students and the annual visit of more than 8000 researchers from all over the world, Univ. Grenoble Alps is an internationally engaged university.

A personalized Welcome Center for international students, PhDs and researchers facilitates your arrival and installation.

In 2016, Univ. Grenoble Alpes was labeled «Initiative of Excellence ». This label aims at the emergence of around ten French world class research universities. By joining Univ. Grenoble Alpes, you have the opportunity to conduct world-class research, and to contribute to the social and economic challenges of the 21st century ("sustainable planet and society", "health, well-being and technology", "understanding and supporting innovation: culture, technology, organizations" "Digital technology").

* ESRF (European Synchrotron Radiation Facility), ILL (Institut Laue-Langevin), IRAM (International Institute for Radio Astronomy), EMBL (European Molecular Biology Laboratory), EMFL (European Magnetic Field Laboratory)

Key figures:

- + 50,000 students including 7,000 international students
- 3,700 PhD students, 45% international
- 5,500 faculty members
- 180 different nationalities
- 1st city in France where it feels good to study and 5th city where it feels good to work
- ISSO: International Students & Scholars Office affiliated to EURAXESS

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1 Univ. Grenoble Alpes
Temperature Sensing in Arabidopsis: role of EARLY FLOWERING 3

Due to climate change and global warming, understanding how plants sense and respond to changes in temperature is a critical challenge for ensuring crop yield and food security in the coming decades. Recent studies suggest that the plant-specific protein, EARLY FLOWERING 3 (ELF3), acts as a direct thermosensor. ELF3 is an intrinsically disordered protein (IDP) with a low-complexity prion-like domain (PrLD) containing a glutamine-rich polyQ region. Tandem repeats of polyQs are represented in a large proportion of eukaryotic proteins involved in complex formation and transcriptional regulation. Expansion of polyQ tracts above a certain threshold (36Q) is responsible for neurodegenerative diseases including Huntington disease and ataxias in humans. However, shorter non-pathogenic polyQ tracts likely play important roles in genetic variation and adaptation in diverse organisms, although their mechanism of action is much less well-studied. Arabidopsis offers an attractive model to investigate the putative role of the ELF3 polyQ PrLD due to the wide geographic distribution of the plant and the availability of hundreds of sequenced genomes.

Recent data suggests that the PrLD domain of ELF3 allows it to act as a thermosensor by switching the protein from a monomeric to aggregated species in a temperature-dependent manner. The proposed thesis project will define the molecular mechanism of ELF3-mediated thermosensing through biochemical, biophysical and structural experiments. The project has 3 main objectives: 1) produce and characterize ELF3 full length and PrLD constructs, 2) characterise the protein using biophysical techniques including SEC-MALS and CD 3) determine the PrLD structure and oligomerisation state at different temperatures by NMR. These objectives will allow us to develop a molecular model for how ELF3 is able to respond to temperature changes over a narrow growth permissive range. In the longer term these data will form the basis of engineering altered thermoresponse through targeted mutations in ELF3 in model plant and crop species for improved adaptation to warming growth conditions.

For a full project description and more information, please contact chloe.zubieta@cea.fr or martin.blackledge@ibs.fr

ELIGIBILITY CRITERIA
Applicants must hold a Master’s degree (or be about to earn one) or have a university degree equivalent to a European Master’s (5-year duration).

Applicants will have to send an application letter in English and attach:
- Their last diploma
- Their CV
- A short presentation of their scientific project (2 to 3 pages max)
- Letters of recommendation are welcome.

Address to send their application: chloe.zubieta@cea.fr and martin.blackledge@ibs.fr

SELECTION PROCESS
Application deadline: 1 August 2018 at 17:00 (CET)
Applications will be evaluated through a three-step process:

1. Eligibility check of applications in August 2018
2. 1st round of selection: the applications will be evaluated by a Review Board in August 2018. Results will be given in 1 September 2018.

3. 2nd round of selection: shortlisted candidates will be invited for an interview session in Grenoble on September 10, 2018. (if necessary)

TYPE of CONTRACT: temporary-3 years of doctoral contract
JOB STATUS: Full time
HOURS PER WEEK: 35
OFFER STARTING DATE: 1-10-2018
APPLICATION DEADLINE: 1-08-2018
Salary: between 1768.55 € and 2100 € brut per month (depending on complementary activity or not)