



Grenoble Alliance for Integrated
Structural & Cell Biology

GRAL MSc RESEARCH SCHOLARSHIP 2020-2021 RESEARCH INTERNSHIP PROPOSAL

Institute / Group

IRIG / PCV – Floral_Regulators

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Research Project Title

In planta characterization of LFY and UFO interactions

Description of the project

LFY is a transcription factor considered as the master regulator of flower development. Several of its functions are intimately dependent on a member of an ubiquitin ligase complex called UFO. We are currently characterizing LFY and UFO biochemical interactions *in vitro*, as well as in yeast or in plant protoplast expression systems. The aim of this project is to integrate these data in an *in vivo* context. The protoplast expression system will be used as a rapid tool to test a wide variety of mutant versions of LFY and/or UFO, fused to fluorescent proteins, for molecular interaction (by FRET, BiFC and/or CoIP) and subcellular localization. The most interesting constructs will be used to develop transgenic plant lines, to explore *in vivo* regulations of expression. A theoretical background in (plant) development and in molecular genetics is recommended but not compulsory.

Keywords

Flower development, transcription factor, ubiquitination, confocal microscopy

Relevant publications of the team

Denay, G., Chahtane, H., Tichtinsky, G. and Parcy, F. 2017. A flower is born: an update on Arabidopsis floral meristem formation. *Current Opinion in Plant Biology*. 35, 15–22.

Chahtane, H., Zhang, B., Norberg, M., LeMasson, M., Thévenon, E., Bako, L., Benloch, R., Holmlund, M., Parcy, F., Nilsson, O., et al. 2018. LEAFY activity is post-transcriptionally regulated by BLADE ON PETIOLE2 and CULLIN3 in Arabidopsis. *New Phytol* 220, 579–592.

Sayou, C., Nanao, M.H., Jamin, M., Posé, D., Thévenon, E., Grégoire, L., Tichtinsky, G., Denay, G., Ott, F., Peirats Llobet, M., Schmid, M., Dumas, R. and Parcy, F*. 2016. A SAM oligomerization domain shapes the genomic binding landscape of the LEAFY transcription factor. *Nature communications*. 7, 11222.
