PIF2024 - Functional and molecular relations controlling the activity of light signalling repressors (PID2023-152283NB-100)

DESCRIPTION

Plants shape earth landscape, are the basis of trophic chains and sustain animal life. As photo-autotrophic organisms, plants developed diverse and highly efficient strategies to adapt to environmental light conditions. Due to their importance for autotrophy, light signalling pathways play a central role in the control of plant growth and adaptation to the environment. The activity of the repressor proteins in this pathway has a direct consequence in plant growth and biomass production and are considered central paths where other stress signalling and adaptative pathways converge. We aim to understand how repressors of light signalling associate together in the nuclear space and how their activity is regulated. The molecular dynamics of these complexes is essential for the recognition of the transcription factors to be ubiquitinated and further degraded. We seek to deepen into the knowledge of light signalling pathways, integrating molecular biology, biochemical, genetics and genomics tools.

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Related publications:

Cañibano E, Gomez-Soto D, Oliveros JC, Bourbousse C, **Fonseca S** (2024) An active light signalling pathway is necessary for ABA-induced inhibition of hypocotyl elongation. ***bioRxiv*** https://doi.org/10.1101/2024.01.20.576397.

Lee B-D, Yim Y, Cañibano, E., Kim S-H, García-León M, Rubio V, **Fonseca S*,** Paek N-C* (2022) CONSTITUTIVELY PHOTOMORPHOGENIC1 promotes seed germination by destabilizing RGA-LIKE2 in Arabidopsis. ***Plant Physiology*** doi: 10.1093/plphys/kiac060

Cañibano E, Bourbousse C, García-León M, Garnelo Gómez B, Wolff L, García-Baudino C, Lozano-Durán R, Barneche F, Rubio V, **Fonseca S** (2021) DET1-mediated COP1 regulation avoids HY5 activity over second-site targets to tune plant photomorphogenesis. ***Molecular Plant*** 14(6): 963-982. doi: 10.1016/j.molp.2021.03.009.

Fonseca S, Rubio V (2019) Arabidopsis CRL4 complexes: surveying chromatin states and gene expression. ***Frontiers in Plant Science***, doi:10.3389/fpls.2019.01095

Nassrallah A, Rougee M, Bourbousse C, Drevensek S, **Fonseca S**, Iniesto E, Ait-Mohamed O, Deton-Cabanillas A, Zabulon G, Ahmed I, Stroebel D, Masson V, Lombard B, Eeckhout D, Gevaert K, Loew D, Genovesio A, Breyton C, de Jaeger G, Bowler C, RubioV, Barneche F. (2018) DET1-mediated degradation of a SAGA-like deubiquitination module controls H2Bub homeostasis. ***eLife*** 2018;7:e37892 DOI: 10.7554/eLife.37892.