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Mysterious suppression of immunity only in one line of AtFLOT2 overexpressing plants

During ages plants have evolved sophisticated immunity as a response to pathogen attack. Crucial for the defence is the recognition of the pathogen. Pathogens carry conserved motifs called PAMPs (pathogen associated molecular patters) which are recognised by PRRs (PAMPs recognizing receptors). Very probably best described ligand-receptor pair is flg22-FLS2. Recognition of flg22 by FLS2 triggers several common immune responses such as immediate ROS production, callose accumulation and increased resistance to pathogens. FLS2 is upon flg22 recognition internalized into the endosomes which shows the importance of vesicle trafficking in FLS2 mediated defense responses (Ben Khaled et al. 2015).

Flotillins are the proteins which were suggested that participate on the clathrin independent endocytosis and to have yet uncovered roles in stress signalling (Daněk et al. 2016). During our project, which was focused on the role of flotillins involvement in the responses to stress, we created Arabidopsis mutants overexpressing AtFLOT2 (35S::AtFLOT2-GFP). Interestingly/unfortunately only one overexpressing line exhibit impaired response specifically to flg22 treatment and also distinct localisation pattern in trichomes.

Ben Khaled, S., Postma, J., & Robatzek, S. (2015). A moving view: subcellular trafficking processes in pattern recognition receptor–triggered plant immunity. Annual review of phytopathology, 53, 379-402.

Daněk, M., Valentová, O., & Martinec, J. (2016). Flotillins, Erlins, and HIRs: From Animal Base Camp to Plant New Horizons. Critical Reviews in Plant Sciences, 1-24.