Designação do Projeto|	STReSS-PI: Estudos funcionais de tráfego de membrana e secreção em células vegetais - a via dos fosfoinositois nas respostas a stresses abióticos
Código do Projeto|	LISBOA-01-0145-FEDER-028170
Objetivo Principal|	Reforçar a investigação, o desenvolvimento tecnológico e a inovação
Região de Intervenção|	Lisboa
Entidade Beneficiária|	FCiências.ID – Associação para a Investigação e Desenvolvimento de Ciências
Data de Aprovação|	03-05-2018
Data de Início|	02-07-2018
Data de Conclusão|	01-01-2022
Custo Total Elegível|	184.523,60€
Apoio Financeiro da União Europeia|	FEDER – 73.809,44€
Apoio Financeiro Público Nacional/ Regional|	OE – 110.714,16€

Objetivos

To study the mechanisms of cell expansion processes making use of Arabidopsis thaliana plants and on these, the most polarized tip growing cells - root hairs and pollen tubes. To establish a correlation of genes involved in the PI signaling pathway with metabolite concentrations mainly under osmotic stress treatment.

Atividades

(1) To select tissue-specific genes of interest related to the production and metabolization of PI(4,5)P2, PI(3,5)P2 and phosphatidic acid (PA) and to proteins regulated by these PIs that are predicted to display bifunctional modes;
(2) To generate mutations in these genes and perform a molecular and cellular characterization of their expression proteins. The mutant lines will be genetically and morphologically characterized. Changes in cellular processes will be identified with live

fluorescence imaging methods. Protein localization will be studied using XFP fusion constructs. Resilience of different mutant lines will be assessed by Atomic Force Feedback Microscopy;
(3) Lipidomic and metabolomic analysis of mutant cells by high-resolution mass spectrometry, under control and stress conditions;
(4) To perform protein-protein interaction studies using bimolecular fluorescence complementation (BiFC) to test putative spatio-temporal partnerships
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Resultados Esperados / Atingidos

With this proposal we expect to:
a) provide new insights on gene and gene products important for underlying tip growth processes namely membrane secretion, vesicle targeting and fusion, ion dynamics;
b) identify new partners and regulators of proteins involved in plant responses to abiotic stress;
c) contribute with the application of new methodologies to the study of plant cellular metabolomics.