

Line 3 – Support to plant research

UNLOCKING CALCIUM-DEPENDENT REGULATION OF PHOTOSYNTHESIS

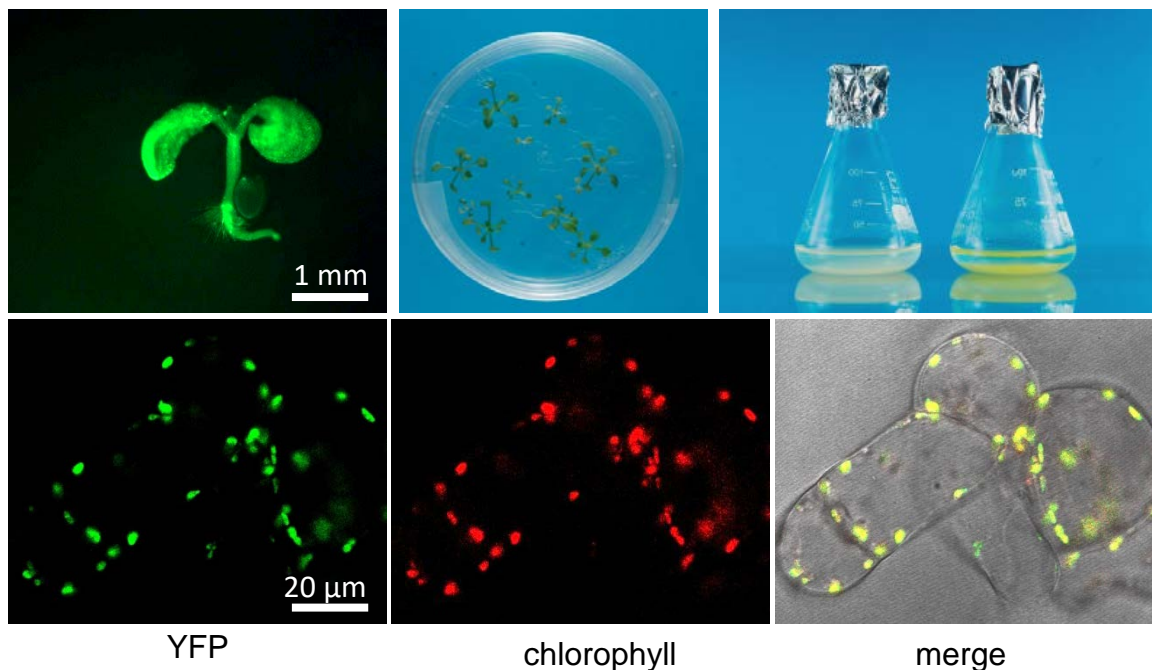
People involved: Lorella Navazio, Ildikò Szabò, Laura Cendron

Project description

Among the factors that finely tune photosynthesis - an essential plant physiological process at the basis of life on earth - an increasing role has recently been attributed to calcium. In this context, our research aims to unravel the precise mechanisms of calcium homeostasis and signalling in chloroplasts, unique plant organelles where the photosynthetic process takes place.

By using in the model species *Arabidopsis thaliana* a bioluminescent calcium reporter targeted to chloroplasts, together with genetic tools represented by mutant plants defective in putative organellar calcium flux-mediating pathways, we are currently investigating chloroplast calcium handling in response to environmental cues. The expected results are likely to have future practical implications on the improvement of plant ability to cope with environmental stresses that can severely impact crop plant health and productivity.

This project is carried out in collaboration with Prof. Ute Vothknecht (University of Bonn, Germany).



Set up of in vitro cell cultures from *Arabidopsis thaliana* seedlings expressing YFP-aequorin in chloroplasts [modified from Sello et al., 2016, Journal of Experimental Botany, 67:3965]