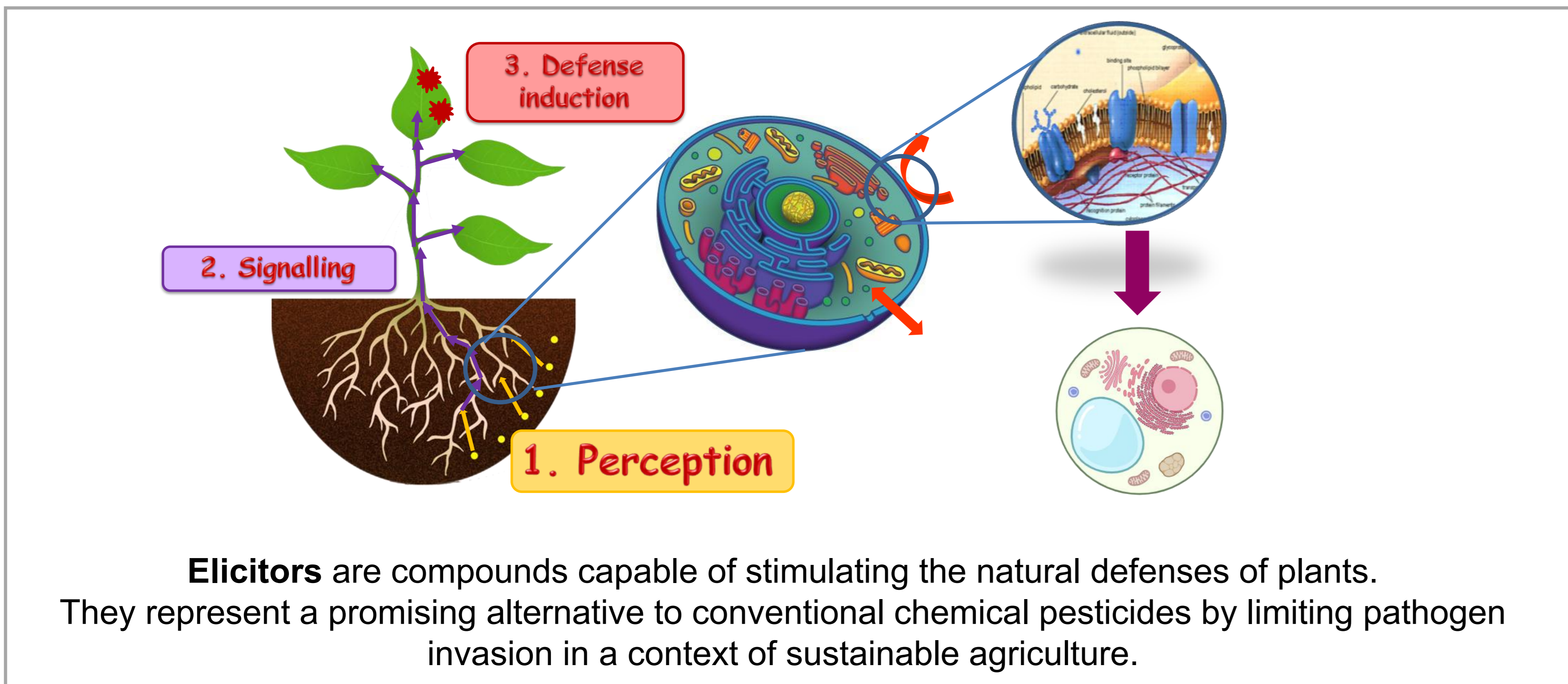


Mechanism of perception of cyclic lipopeptides from soil bacilli by the monocotyledon plasma membrane in relation with their plant defense eliciting activity

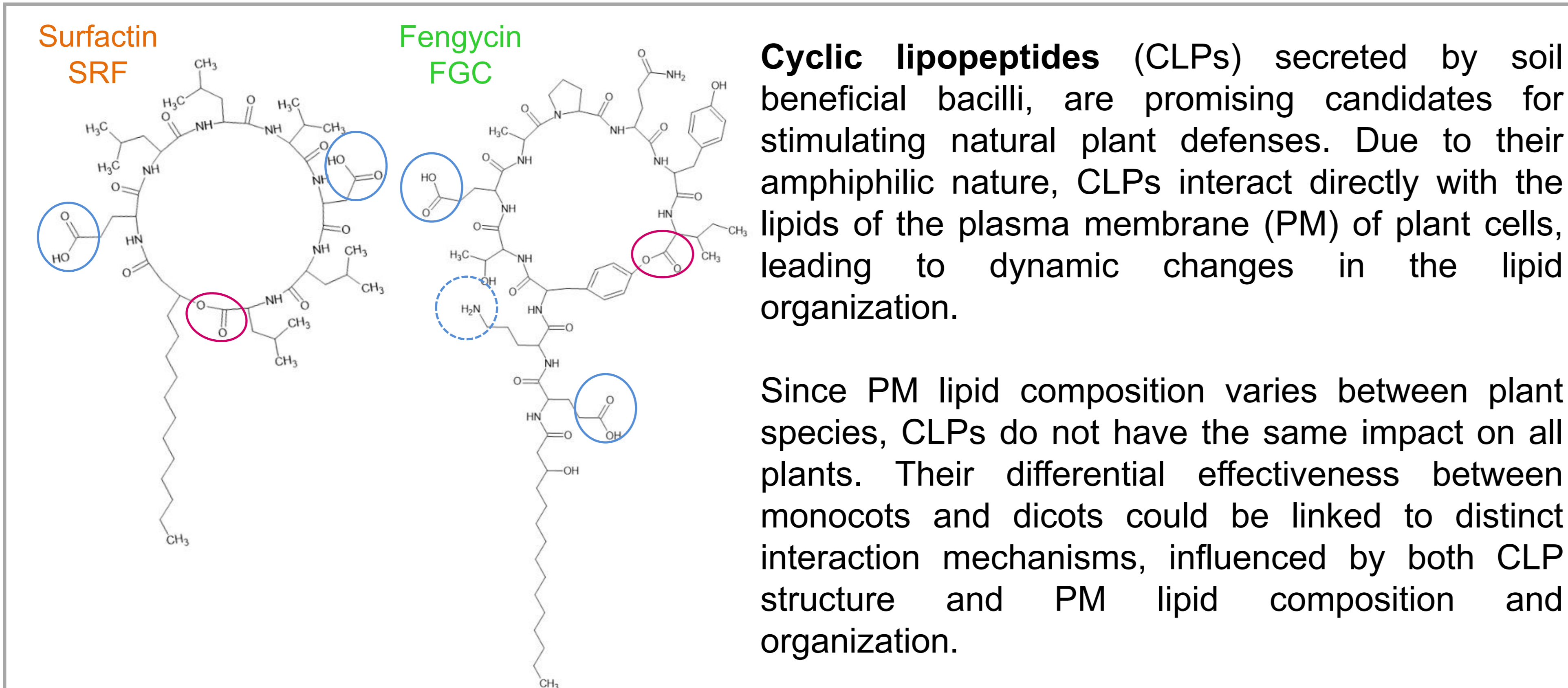
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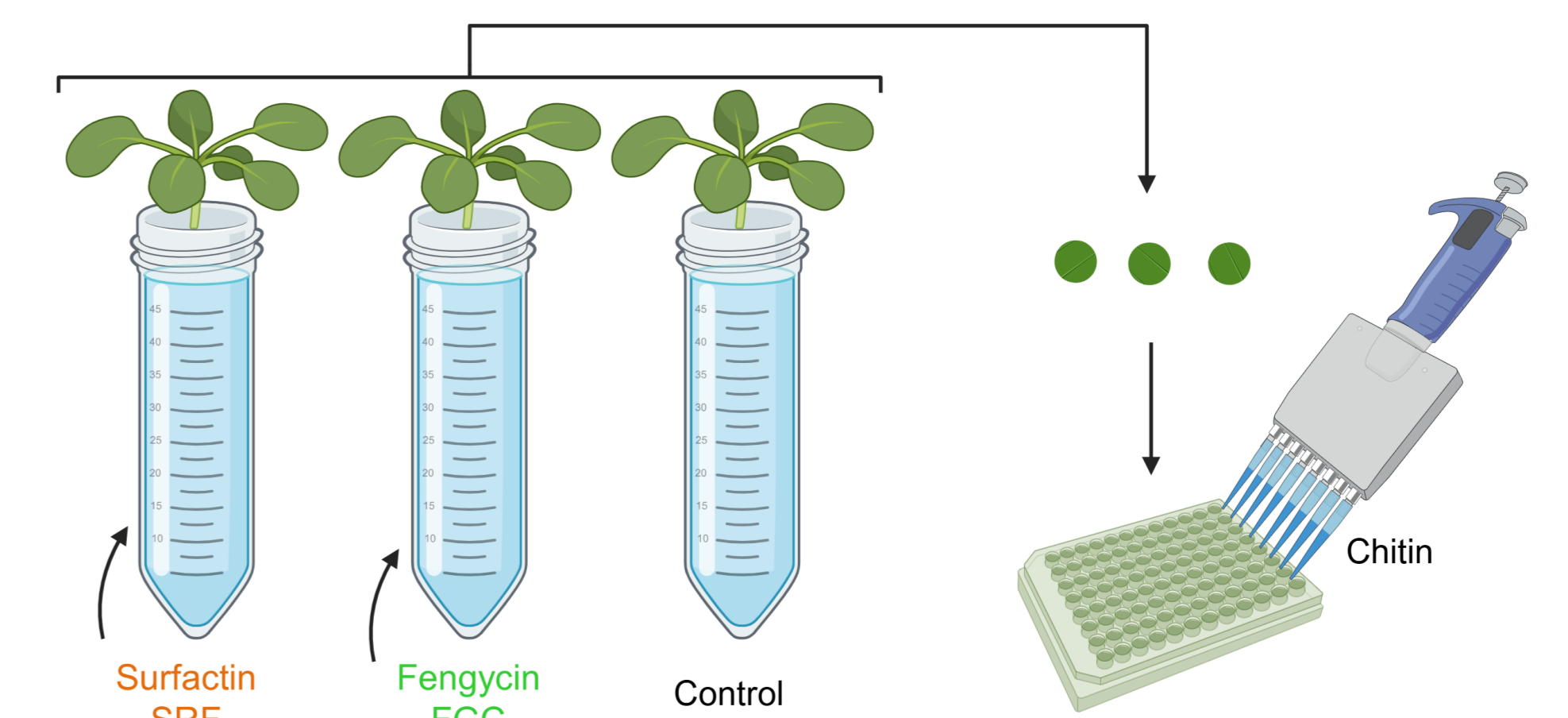


There is a gap in knowledge on the eliciting activity of *Bacillus* CLPs on monocots. This study aims to investigate how *Bacillus* CLPs interact with the PM of wheat, a monocot of agronomic interest, by identifying the activity and studying the impact of CLPs on PM mechanics and organization.

Do SRF and FGC have distinct effects on immune stimulation and plasma membrane mechanics in wheat cells?

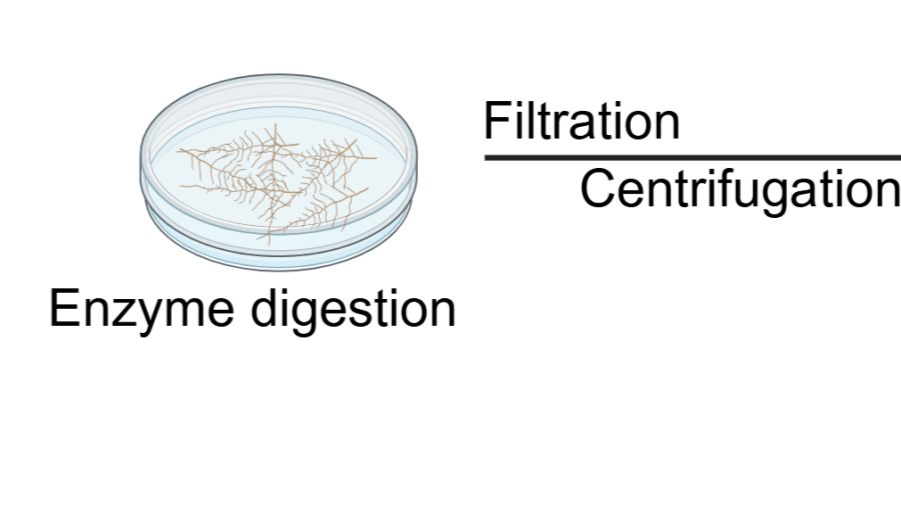


1. Systemic immune activation assays (SIA)

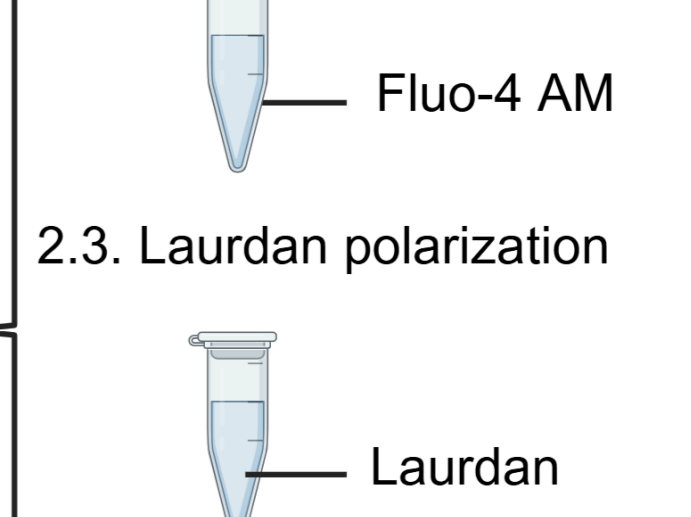


2. Root protoplast

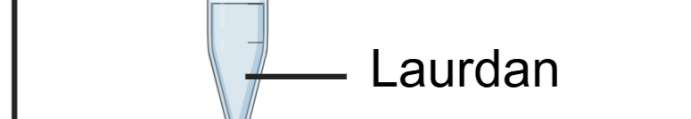
2.1. Root protoplast isolation



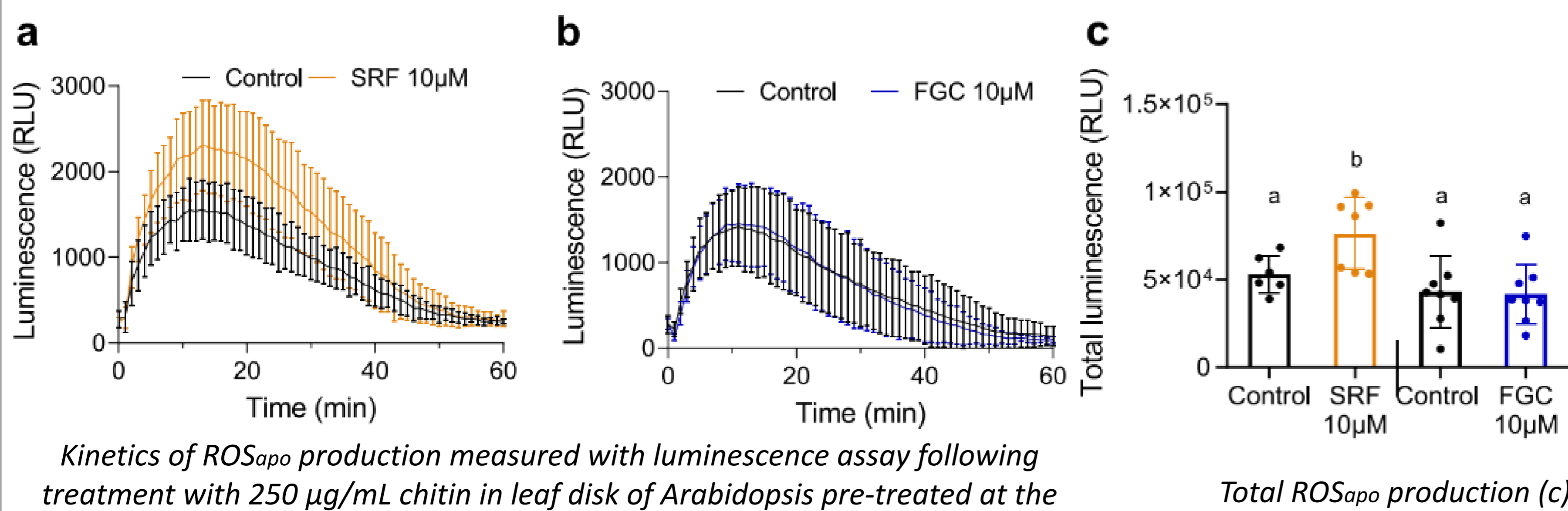
2.2. Calcium measurement



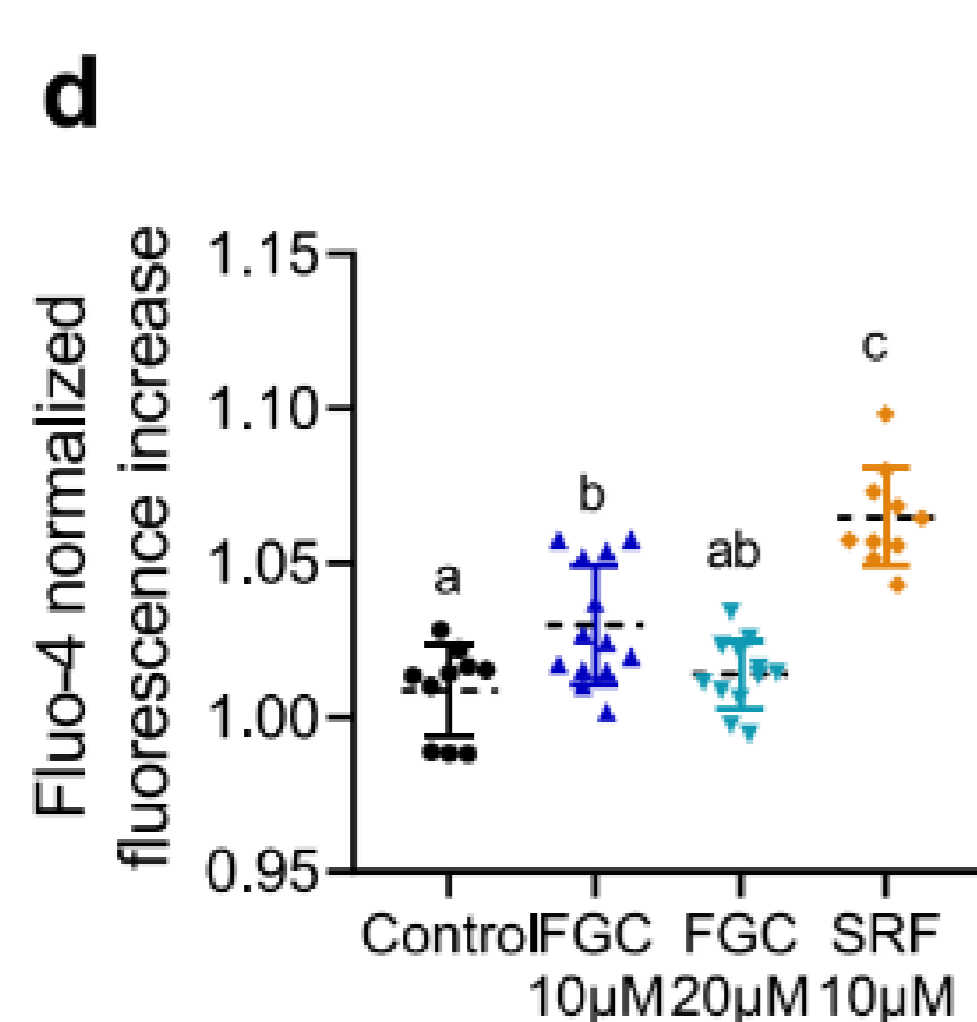
2.3. Laurdan polarization



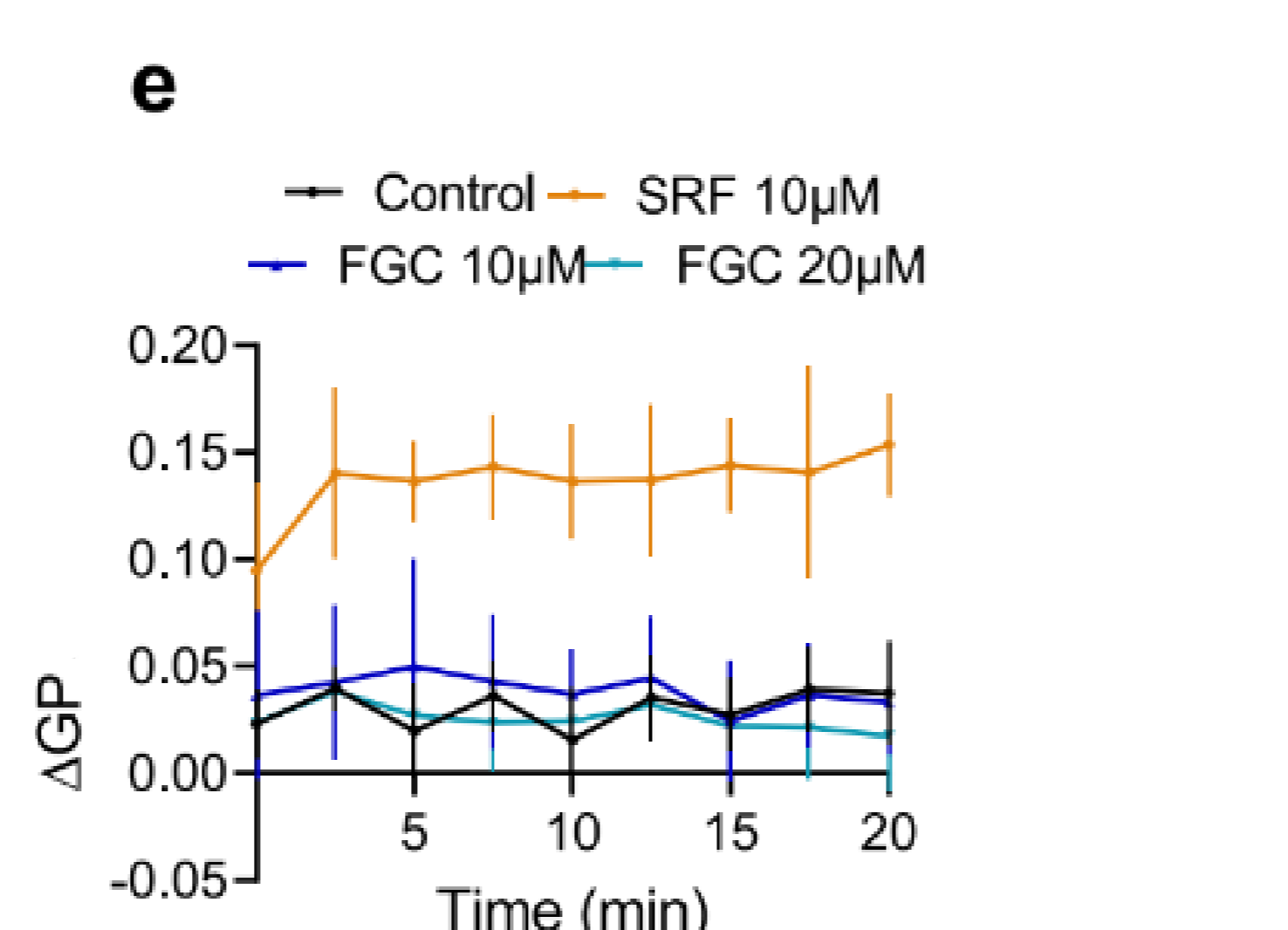
Effect of FGC and SRF on dicot plant cell immune stimulation and plasma membrane mechanics



Arabidopsis plants pre-treated at the root level with 10 µM SRF show an increased ROS_{apo} production in response to chitin treatment, unlike those pre-treated with 10 µM FGC, which respond similarly to the control.

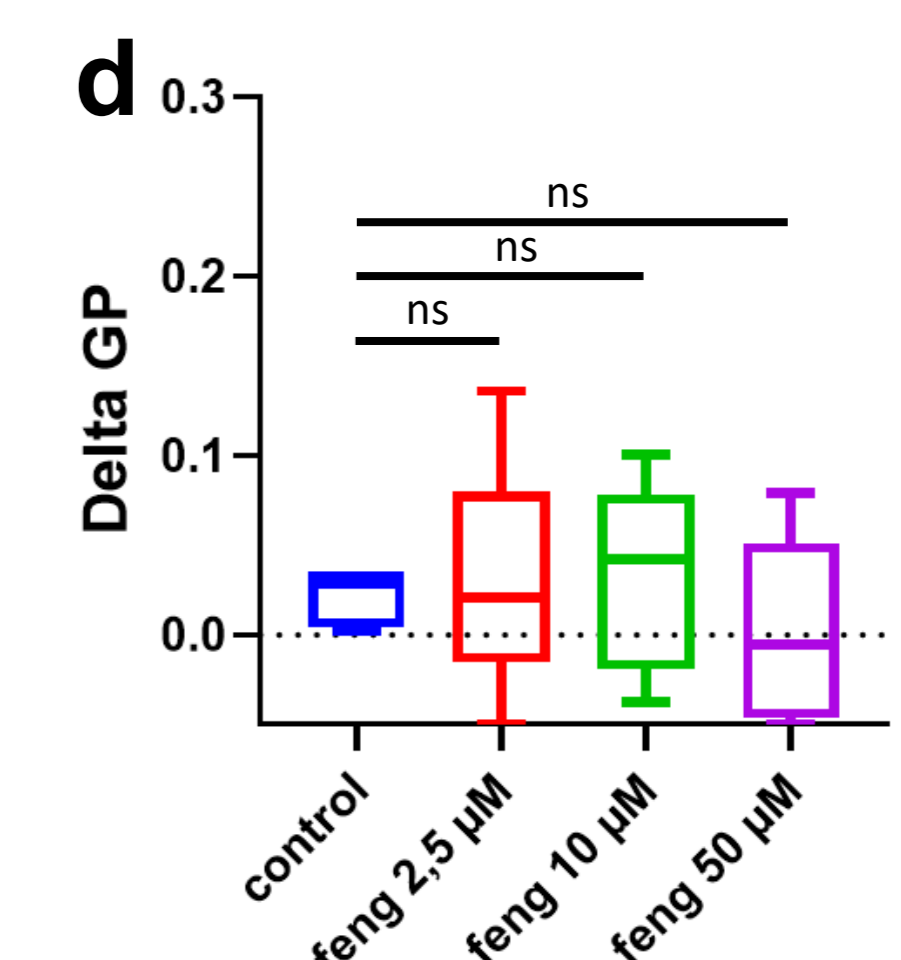
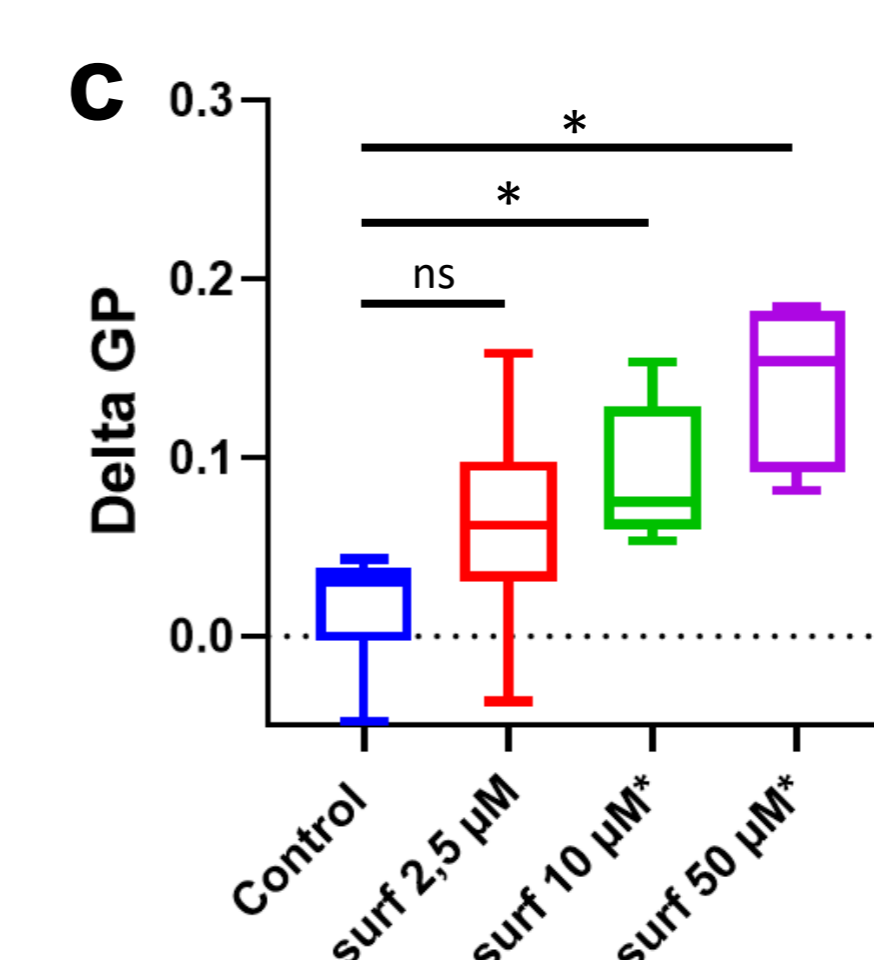
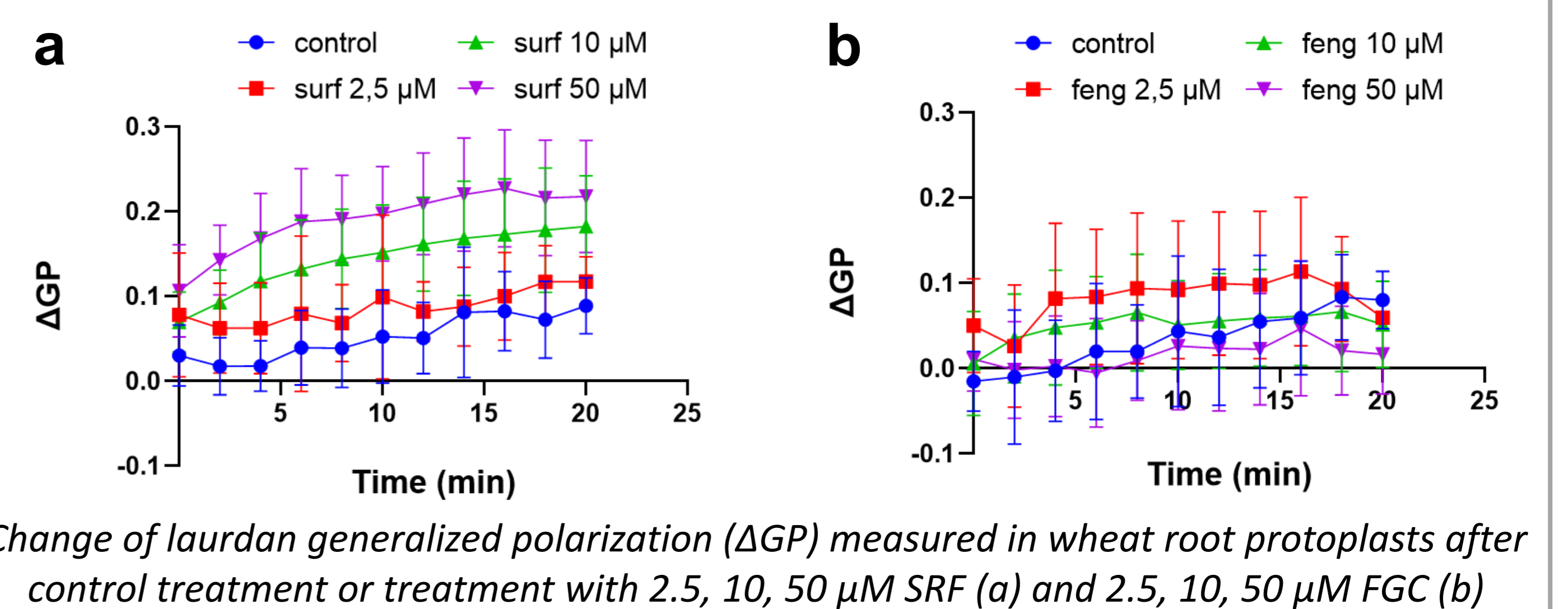


Treatment with 10 µM SRF induced a significant [Ca²⁺]_{cyto} increase while FGC treatment showed significantly lower [Ca²⁺]_{cyto} responses



No effect on PM lipid packing was observed for FGC contrary to SRF that increased lipid compaction

Effect of FGC and SRF on monocot plant cell immune stimulation and plasma membrane mechanics



The effect of CLPs on protoplast PM fluidity shows that the PM stiffens immediately after treatment with SRF, while FGC decreases rigidity, potentially causing protoplast damage or destruction at 50 µM FGC and leading to solubilization.

The correlation between the effect of CLPs on fluidity of protoplast PM, their ability to induce a [Ca²⁺]_{cyto} responses and their SIA suggests that SRF can trigger immunity in *Arabidopsis* by interacting with the PM, whereas FGC cannot.

What we now know

- CLPs can interact with PM lipids in dicots and monocots
- SRF activates systemic immunity, notably by increasing PM rigidity in *Arabidopsis* and wheat
- FGC destabilizes wheat PM and has minimal effect on *Arabidopsis*

What we would like to further know

- To investigate putative early immune events triggered by CLPs in monocots
- Analysis of cytosolic and apoplastic ROS production
- Analysis of Ca²⁺ influx
- Evaluation of SIA

Acknowledgements:

M.D. thanks the F.R.S.-F.N.R.S. (National Funds for Scientific Research, Belgium) for her position as Senior Research Associate. The authors thank also the financial support via the project LIPOIL, PDR LIPOWHEAT (T.0081.24), FRIA DOMSURF (FC36421), Feder 2021-2027, PHENIX Biocontrol ULiège-SPW