

Master internship (can be followed with a PhD):

How much force can a plant cell feel?

Mechanical sensing at the single-cell level

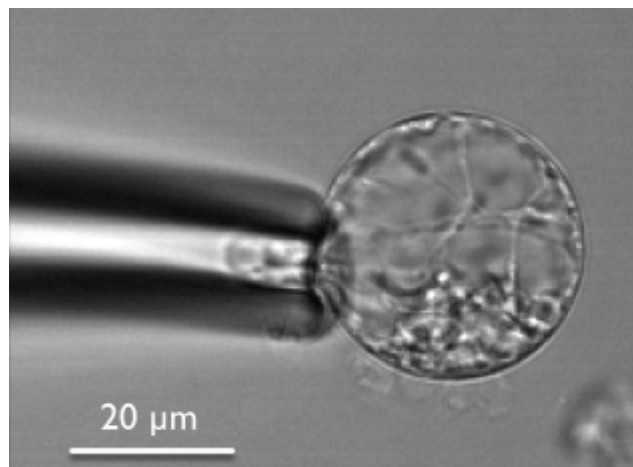
Plant cells sense mechanical forces and respond through rapid signalling events, including increases in intracellular calcium and electrical signals. However, the mechanical thresholds required to activate these responses at the single-cell level have not been quantified.

This internship will investigate the mechanical sensitivity of *Arabidopsis thaliana* protoplasts (plant cells deprived of their wall) using a micropipette-based system to apply controlled mechanical forces while monitoring cellular responses by live fluorescence imaging. The major goal of the internship is to quantify the force threshold required to trigger a Ca^{2+} response in single plant cells and investigate how the magnitude of mechanical stimulation affects the amplitude and dynamics of the response. In collaboration with Antonio Mosciatti and Etienne Couturier, this training will also examine threshold responses to controlled forces by using giant algae *Chara corallina* internodal cells as an alternative experimental model.

The project will involve live-cell imaging, controlled mechanical stimulation, image analysis, and quantitative data analysis. The results will contribute to understanding how plant cells perceive mechanical stimuli.

Informal inquiries should be directed to Pauline Durand-Smet (pauline.durand@u-pariscite.fr).

Our group values diversity and inclusion. Women and scientists from under-represented groups are strongly encouraged to apply.



Arabidopsis thaliana protoplast in an aspiration micropipette