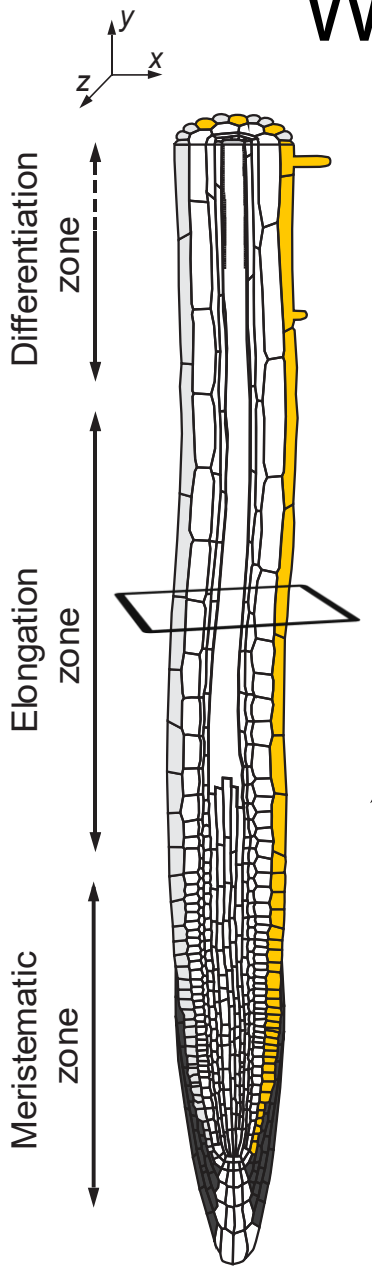
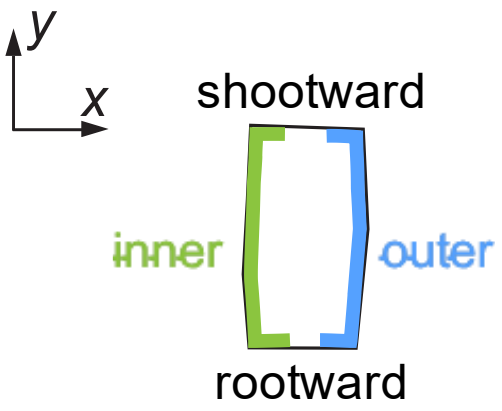
WALLFLOWER, a polarized receptor-like kinase, represses epidermal cell elongation impacting root waving in Arabidopsis

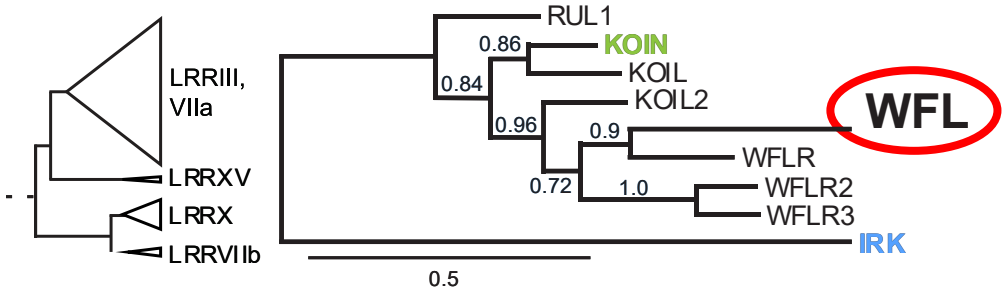
Patricio Pérez-Henríquez
Assistant Project Scientist
Jaimie Van Norman Lab
University of California, Los Angeles

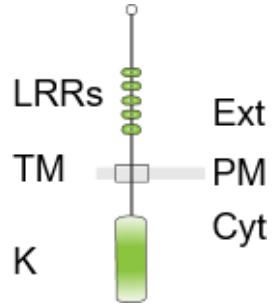
IPGSA 2025
Fort Collins, Colorado, USA

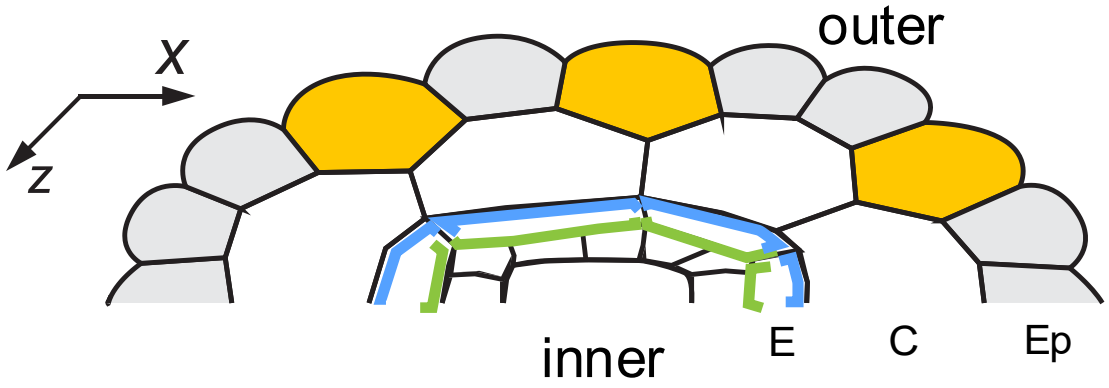
WALLFLOWER; related to polarly localized kinases in roots



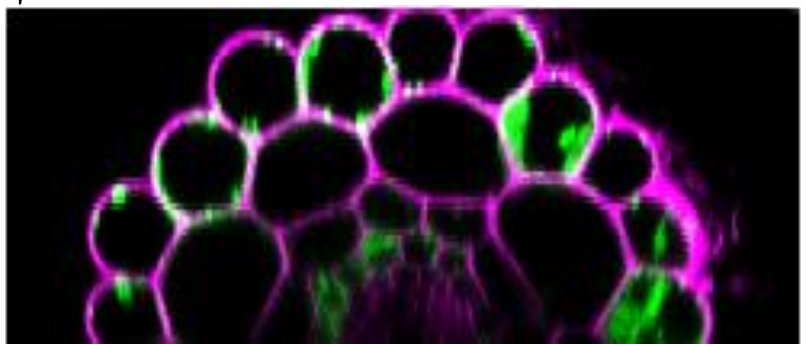








pWFL:erGFP

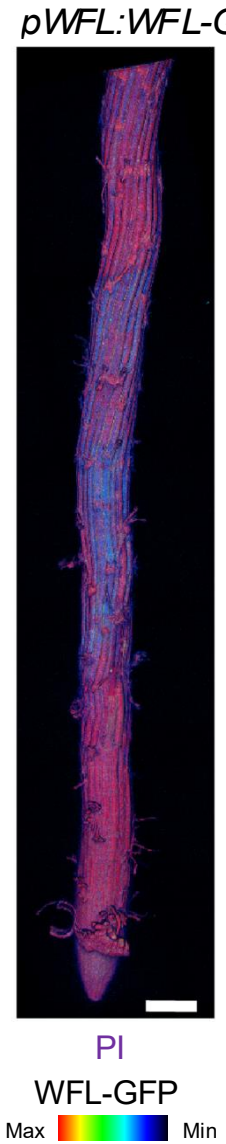


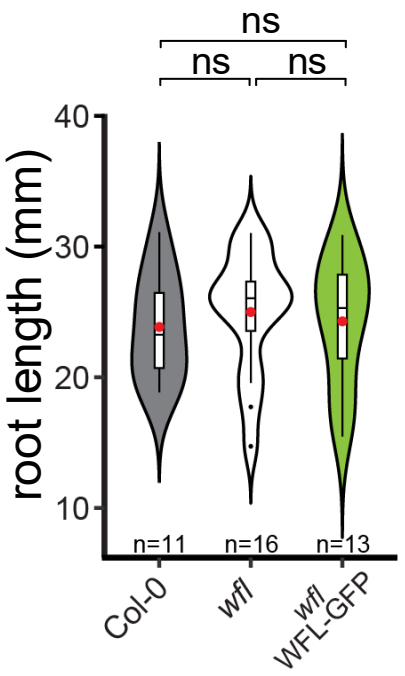
E C Ep

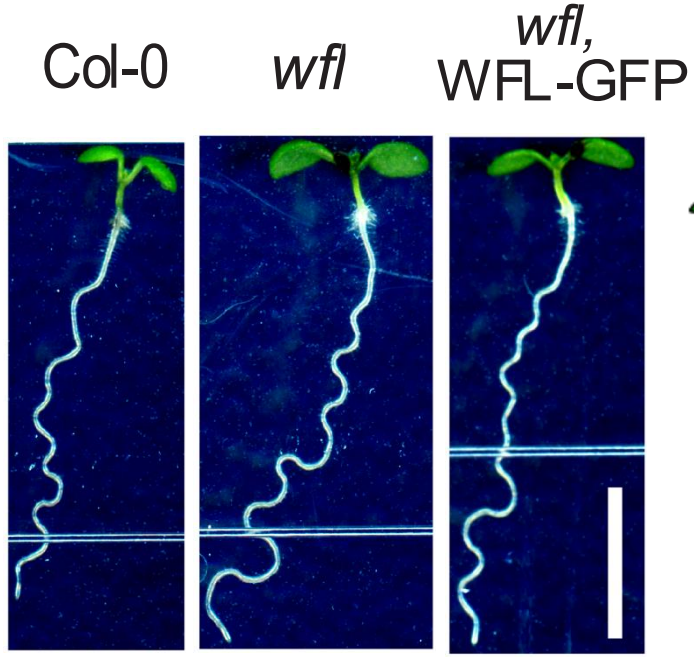
Ep = Epidermis (hair cell)
Ep = Epidermis (non-hair cell)
C = Cortex
E = Endodermis

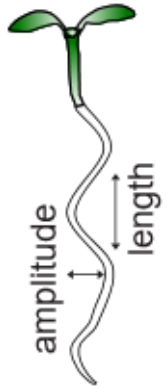
Van Norman *et. al* (2016). *Developmental Biology*
Campos *et. al.* (2020). *Developmental Cell*
Rodriguez-Furlan *et. al.* (2022). *Nature Communications*
Goff *et. al.* (2023). *bioRxiv*
Rony *et. al.* (2024). *Plant Physiology*

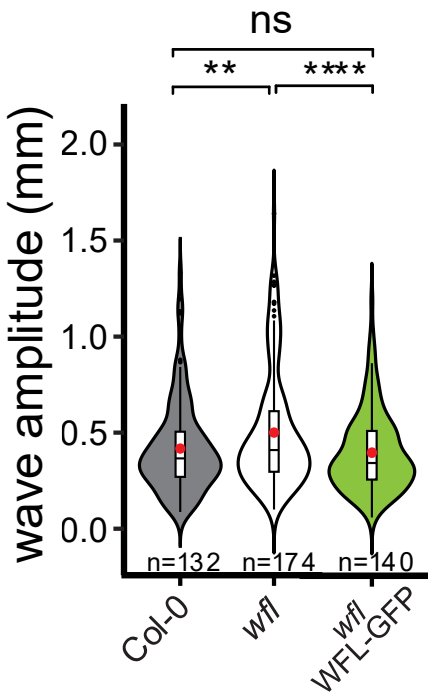
WFL modulates root waving

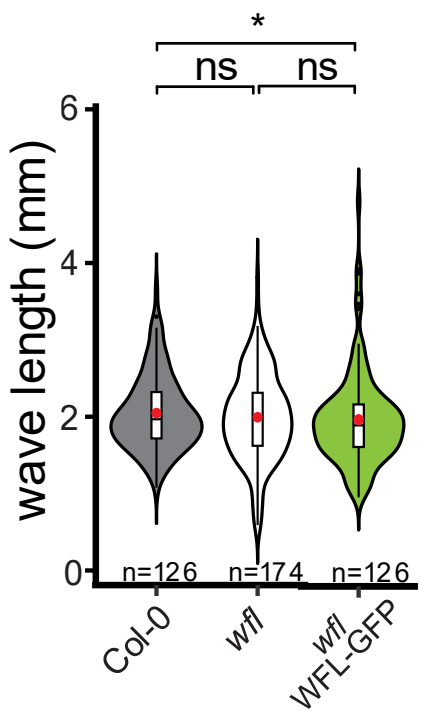




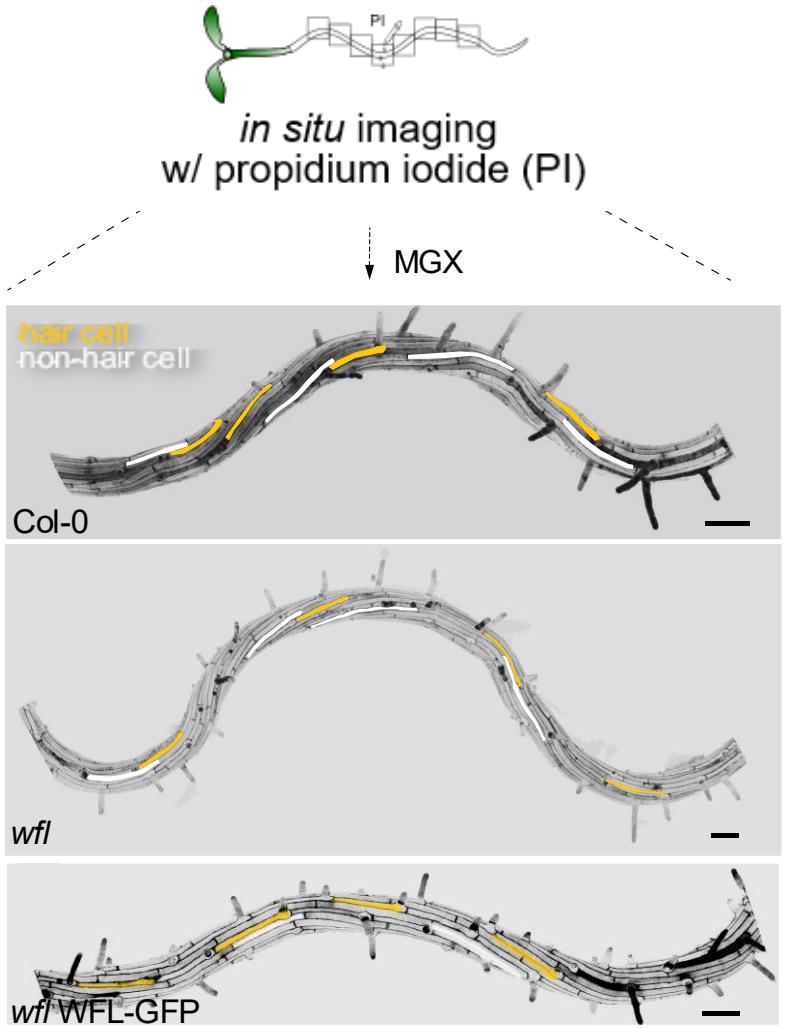


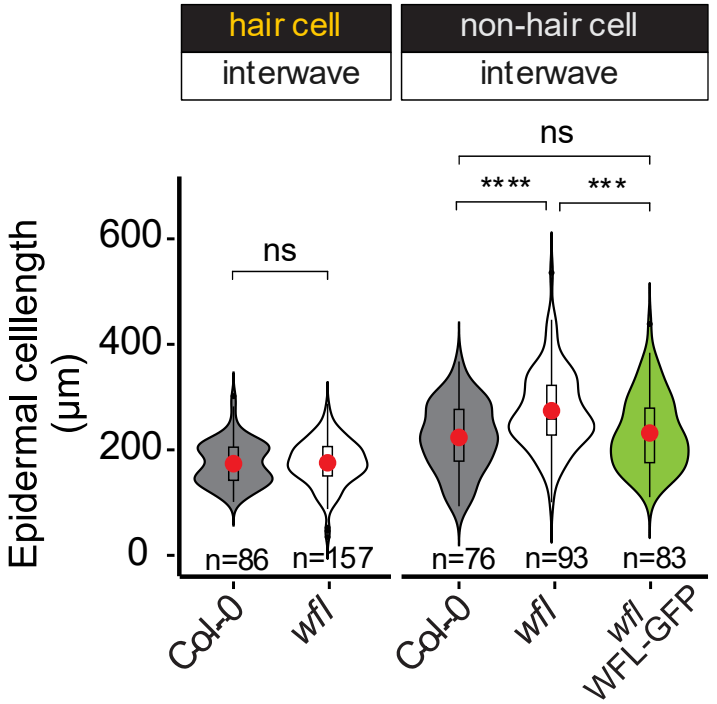


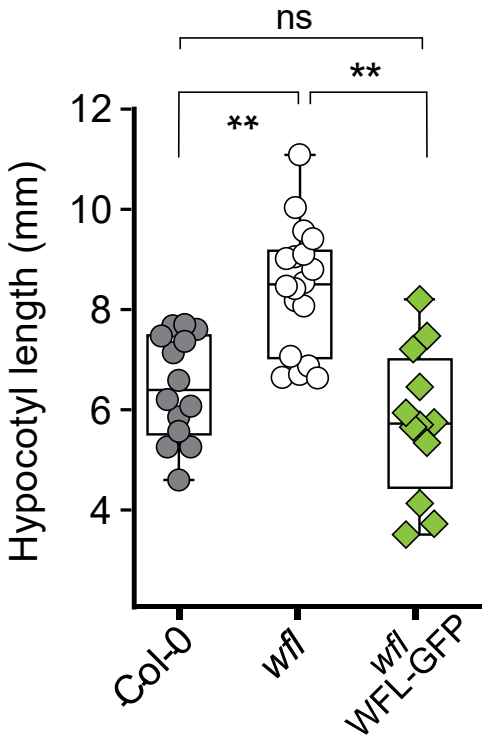




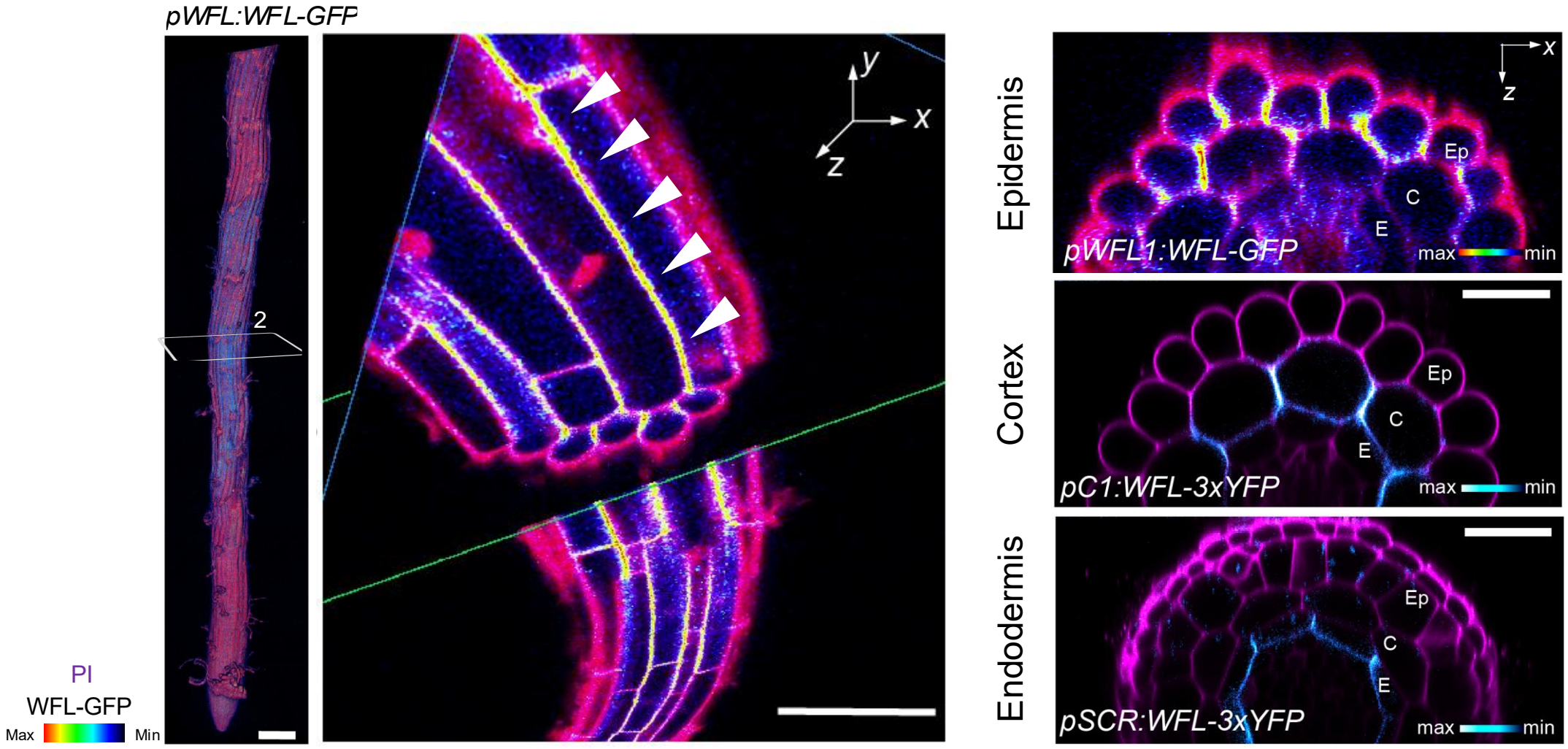
WFL represses elongation of epidermal cells





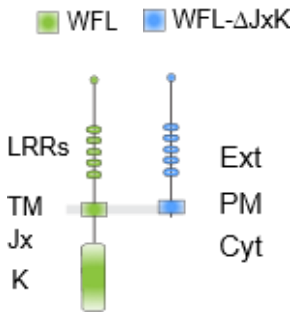


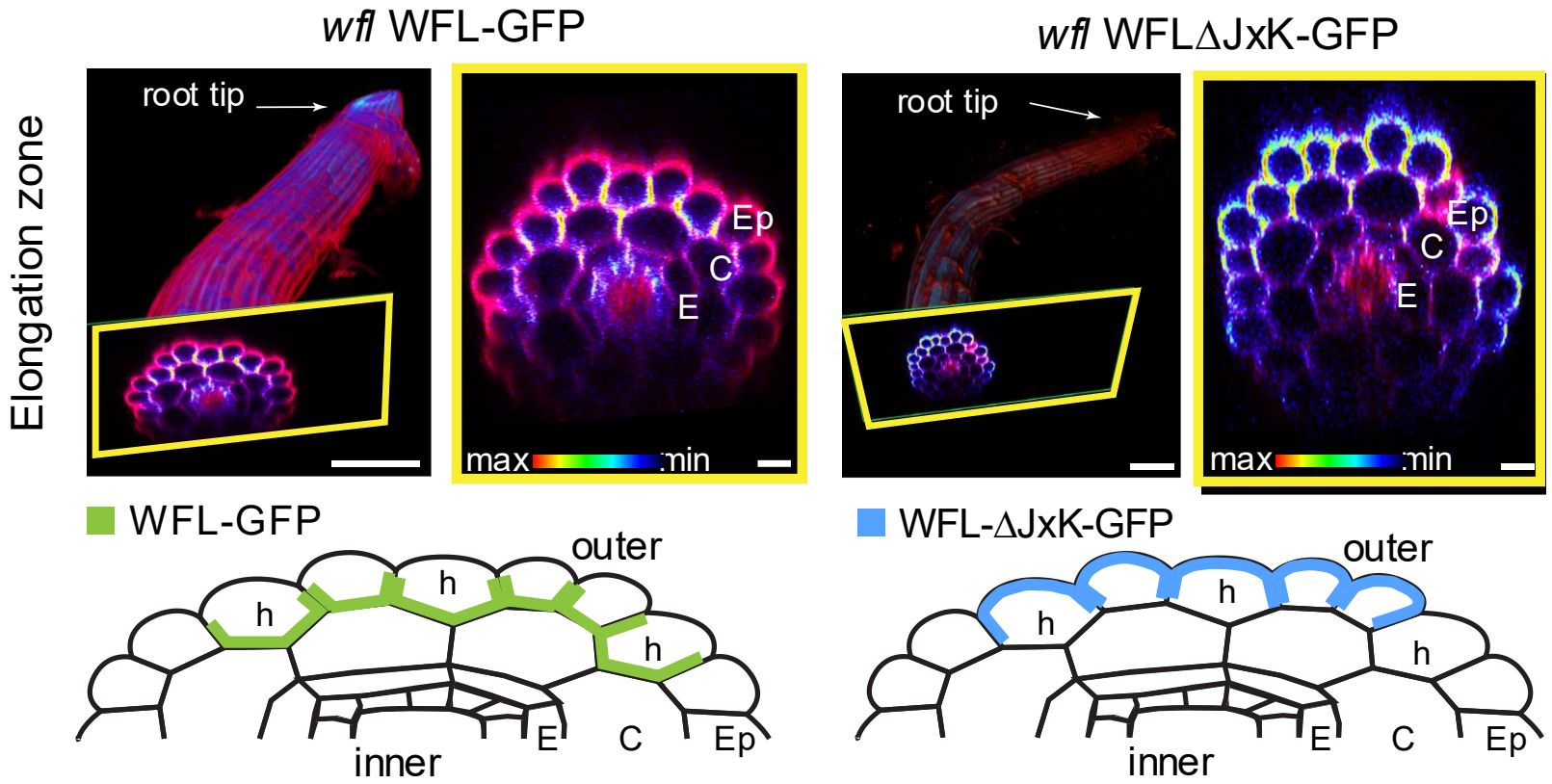
WFL accumulates at the inner polar domain

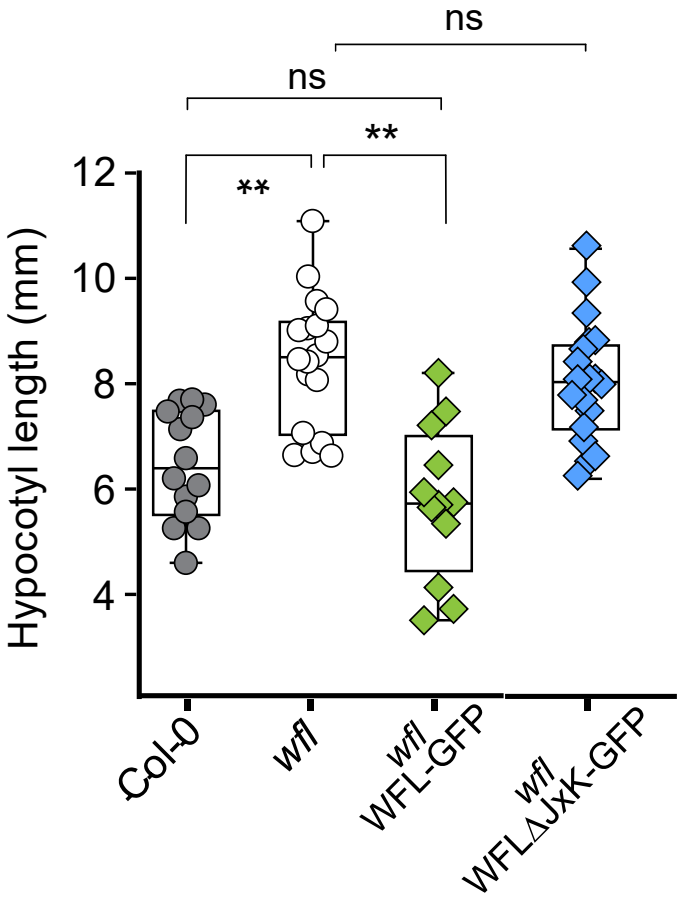


Protein-intrinsic cues are defining WFL localization

WFL kinase domain is required for its localization and function

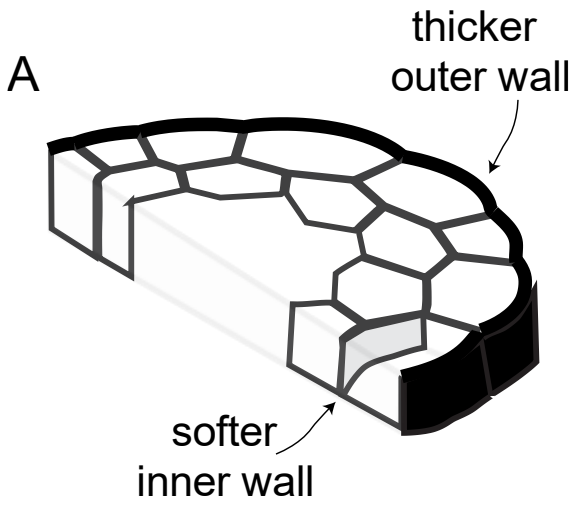


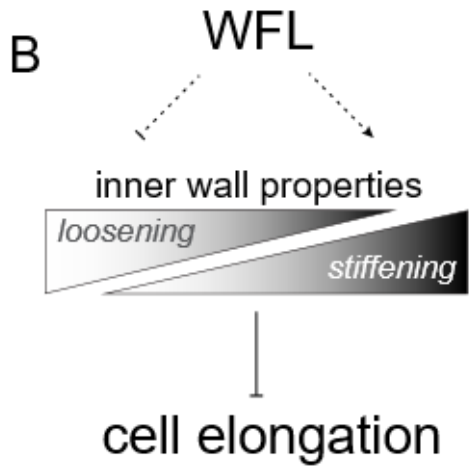


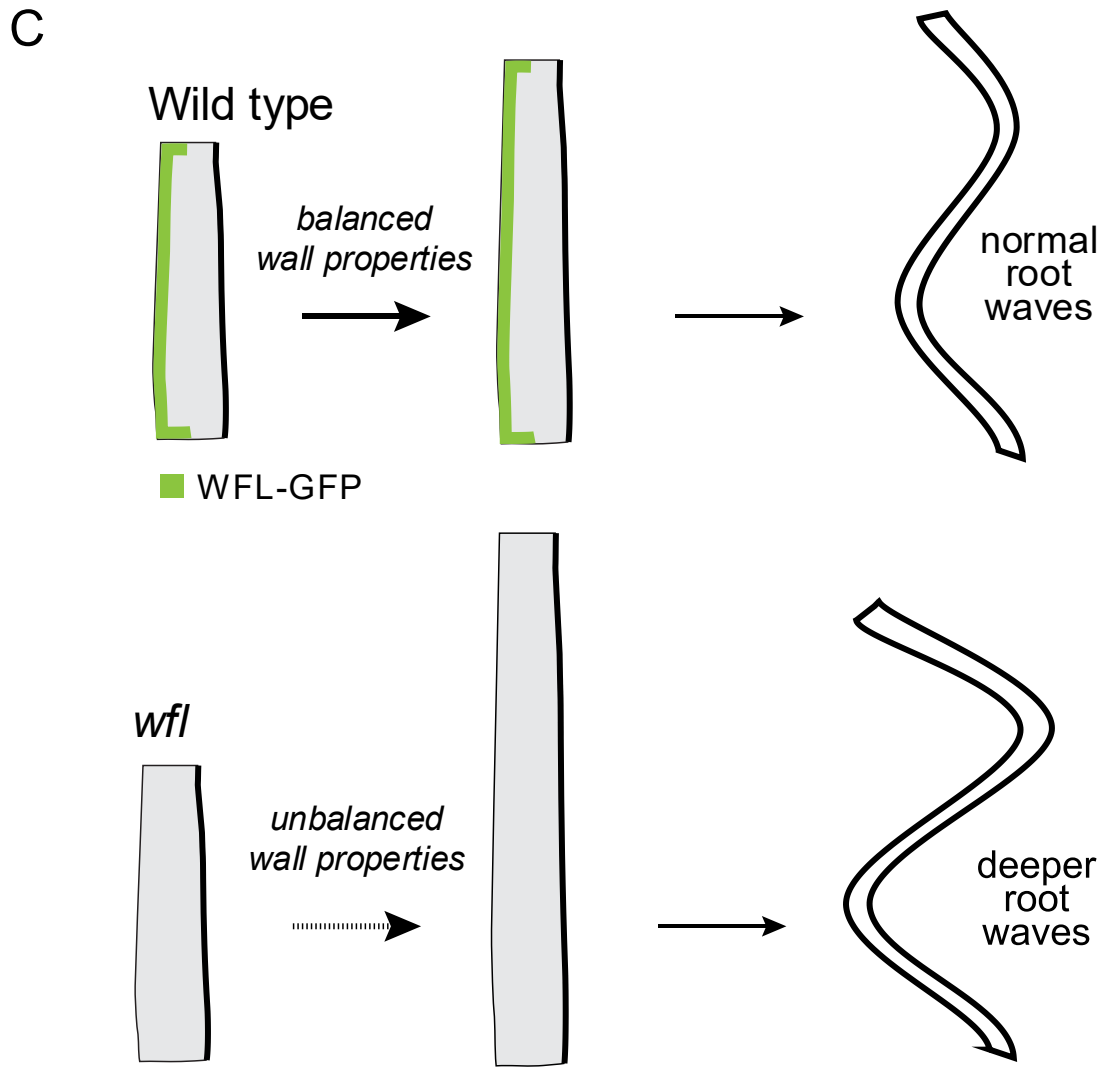


WFL represses cell elongation when localized to the inside

WFL function; a balancing act



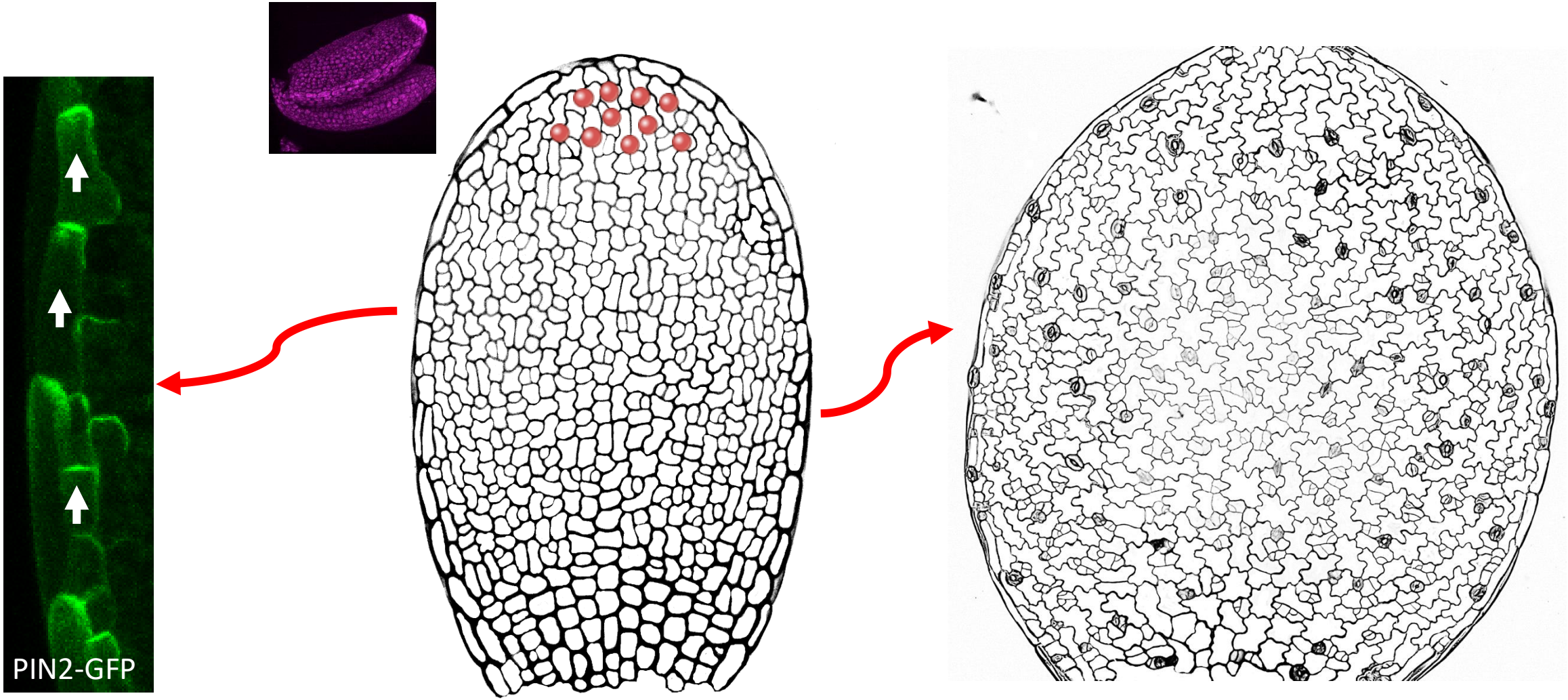




POSTER 66

Pérez-Henríquez and Toth *et al*, 2025, under review

Coordinated epidermal growth in embryonic leaf



Zhenbiao Yang's Lab @UCR

Pérez-Henríquez *et. al.* (2025). *Nature Communications*
Pérez-Henríquez *et. al.* (2024). bioRxiv

Acknowledgements

Jaimie Van Norman Lab

Former members

Jessica Toth (ARUP Lab)

Cecilia Rodriguez-Furlán (WSU)

Current members

Min Chen

Rachel De La Torre

Michael Guzman

Daniele De Grossi Mazzorin