

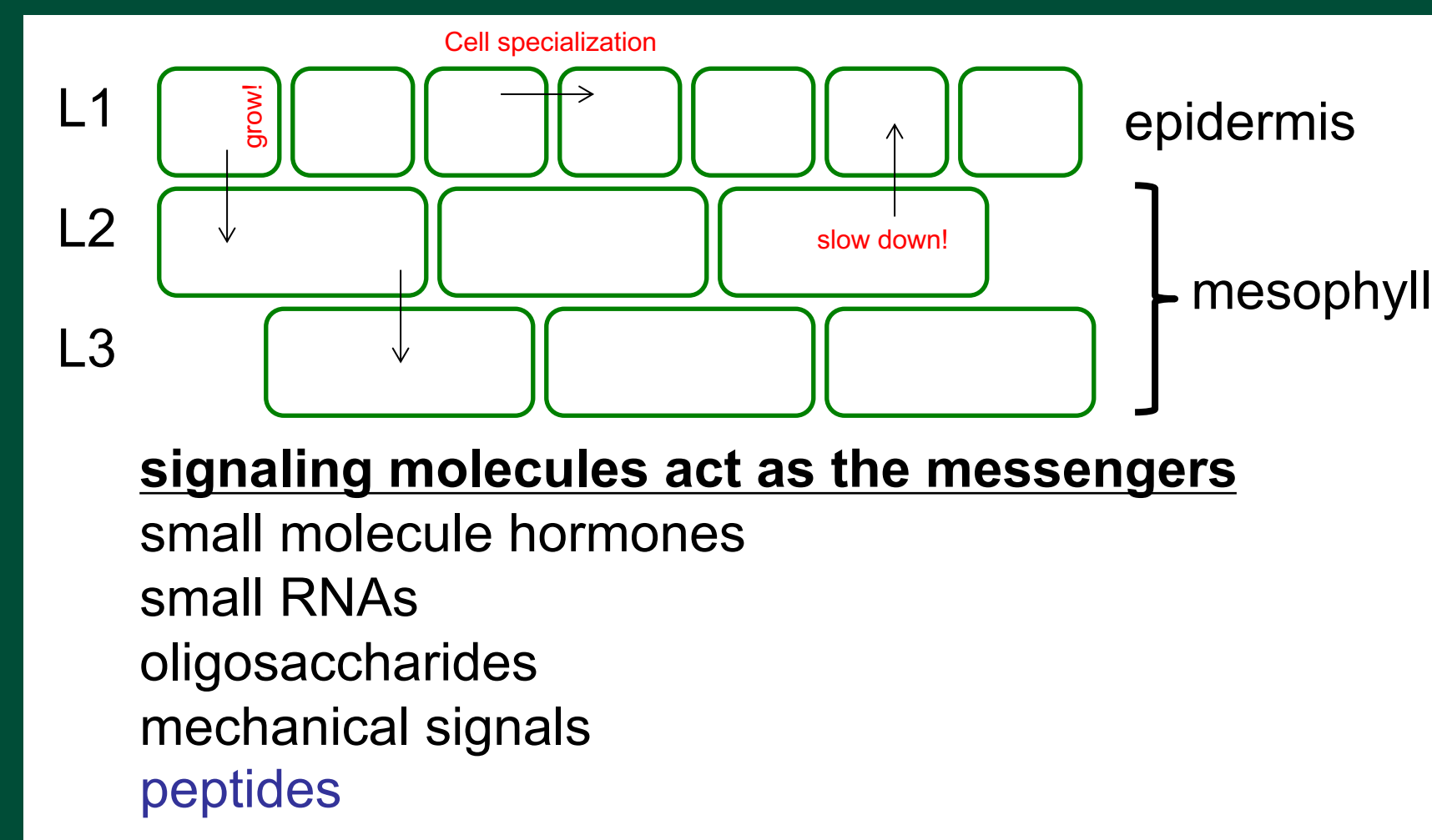
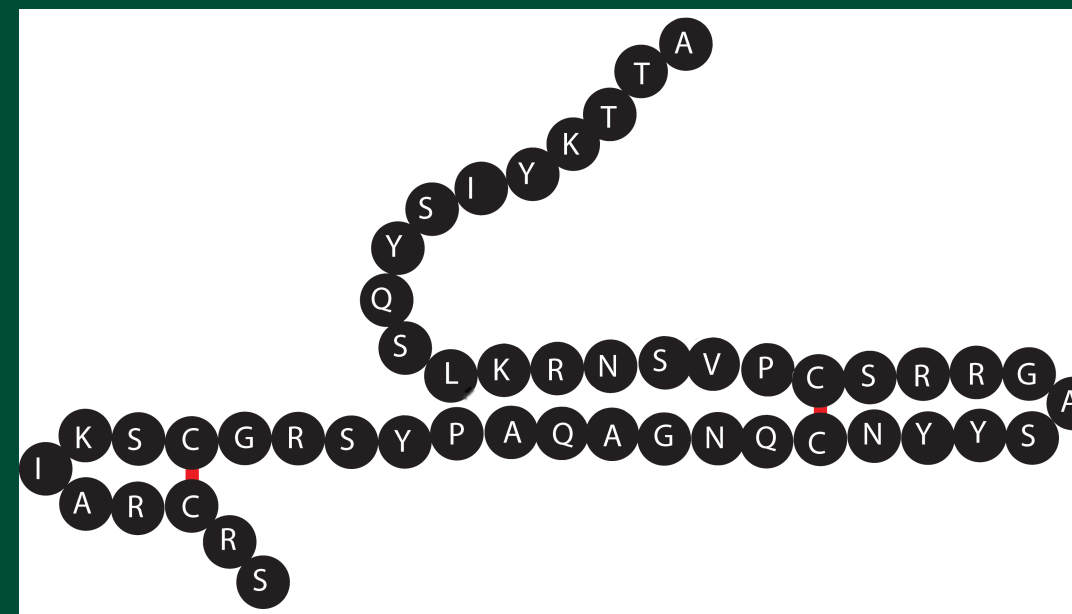
Rapid Alkalinization Factor as a Regulator of Plant Growth

Jonathan Gilkerson

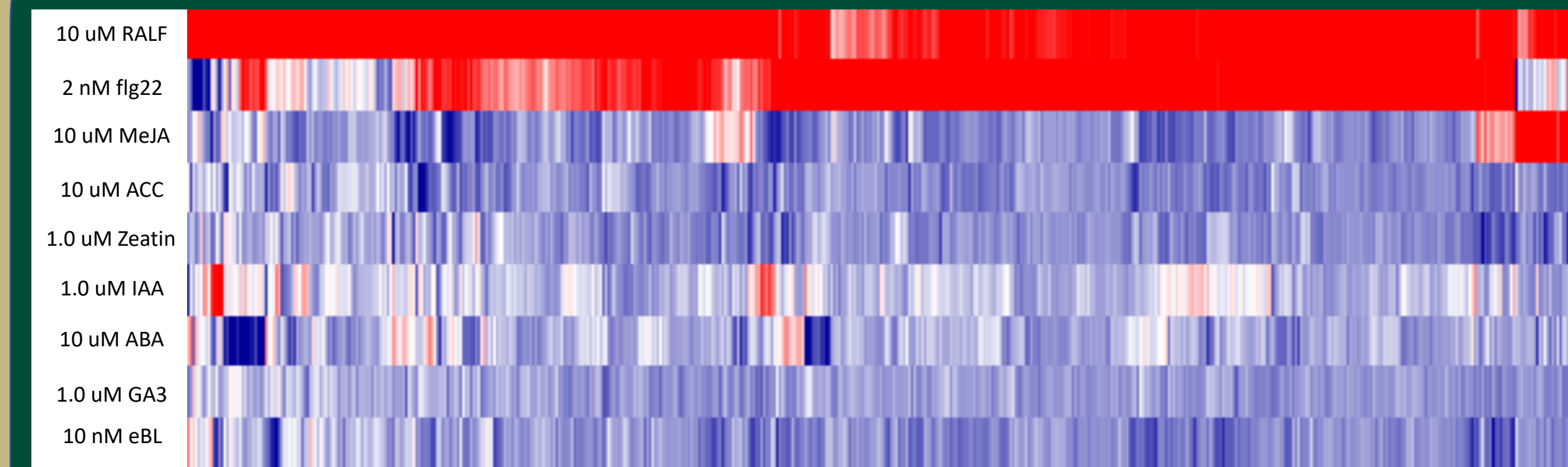
Department of Biological Sciences

Research Overview

- I am interested in the mechanisms by which cells communicate with each other, specifically pathways that directly control their size and shape in response to the environment.
- My research aims to understand how a plant peptide hormone called Rapid Alkalinization Factor (RALF) acts as a signal to influence growth and stress responses.



Major Results



- Transcriptomics uncovers thousands of RALF-regulated genes.
- The transcriptional response similar to bacterial elicitor peptides.
- Recovered ~30 response mutants from genetic screen.

Research Aims and Approaches

- Physiology studies to determine how RALFs interact with major plant hormones to influence growth and stress responses.
- Transcriptomics to identify genes and pathways regulated by RALFs.
- Genetic screens and genome sequencing in Arabidopsis to identify and characterize genes required for RALF action.
- Moss genetics to study the evolutionary history of RALF function.
- Biochemistry to produce and purify active peptides from *E. coli*.

Potential Collaborators

- Biochemists to purify peptides.
- Bioinformaticist to analyze transcriptomics and genome data.
- Engineers to design root microfluidics device for live imaging.
- Industry to translate research into crops and agriculture.