The CLE53-SUNN genetic pathway negatively regulates arbuscular mycorrhiza root colonization

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Nutrient acquisition through plant-microbe interactions

Research interests

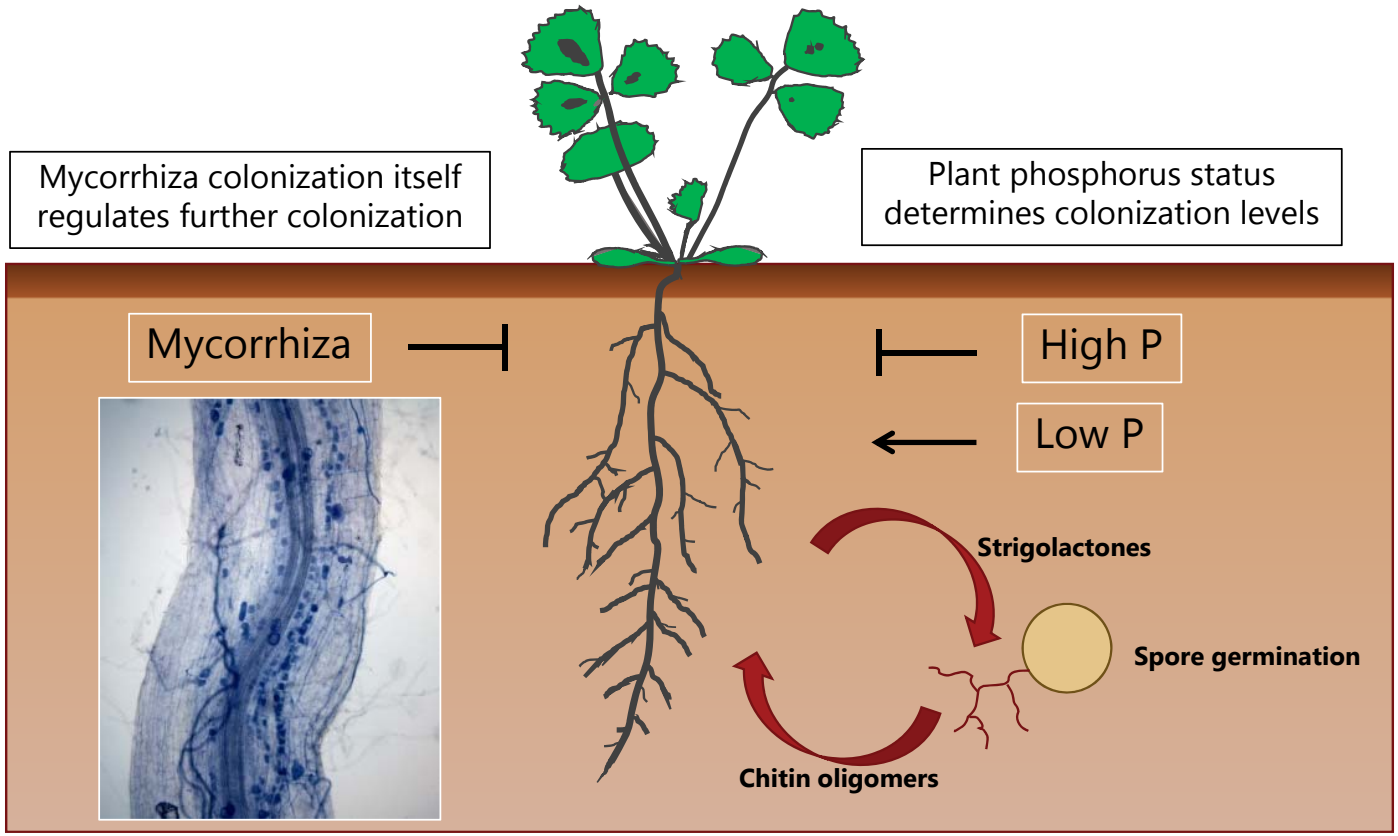
Arbuscular mycorrhizal symbiosis

Symbiotic N_2 fixation in legumes

Associative N_2 fixation in crops

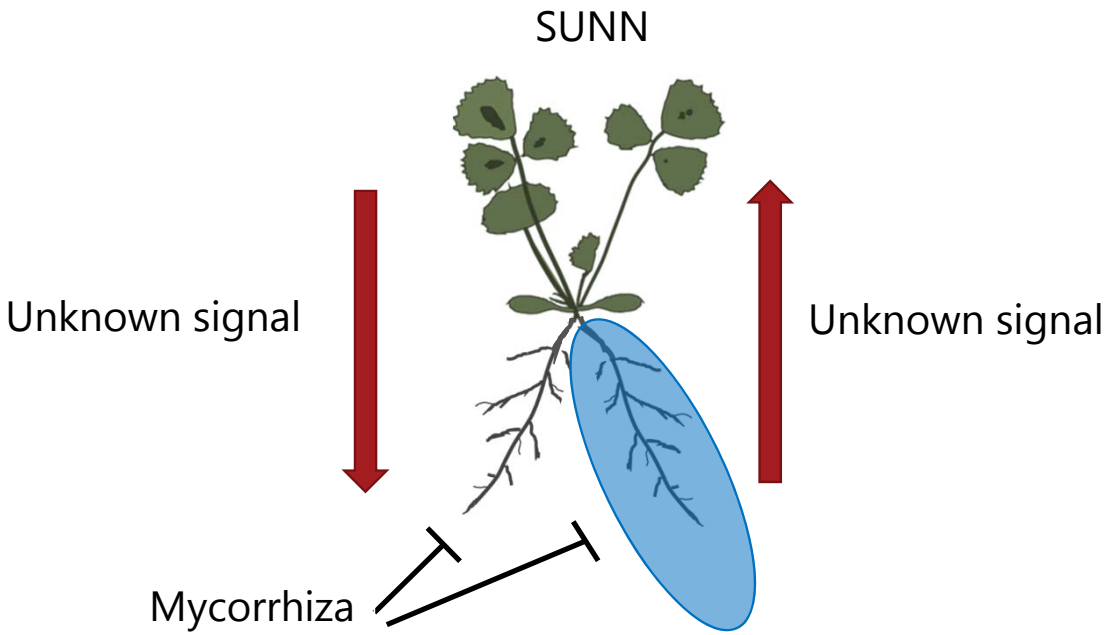
What mechanisms regulate the interaction and how are the nutrients transferred to the plant

Arbuscular mycorrhizal symbiosis



Small plant signalling CLE peptides regulate AMF symbiosis

Autoregulation of mycorrhization

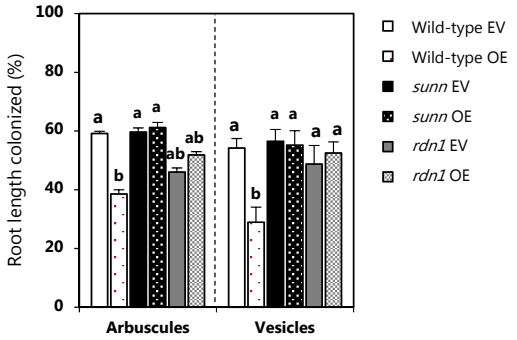


Research question

What is the unknown root-to-shoot signal?

Main result

- CLE53 is expressed in AMF colonized roots.
- Overexpression of CLE53 negatively regulates AMF root colonization dependent on the peptide receptor SUNN with high specificity.



Perspective

- CLE53 homologs exist in crop plants.
- Disrupting genes in the autoregulation pathway may increase mycorrhiza colonization at high phosphorus.