

Shade Avoidance Syndrome in the Model Organism *Arabidopsis thaliana*

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Abiotic stressors that agricultural crops face can be detrimental if the plant cannot easily overcome them¹. These stressors include lack of sunlight, water, or nutrients. To grow the most successful and efficient crops, the molecular changes that occur when the plants are faced with such challenges need to be better understood. Our work focuses on shade avoidance, a set of molecular and phenotypic changes that a plant undergoes when subjected to shade². This response can result in stem elongation and early flowering, as well as other undesirable agricultural phenotypes.

Arabidopsis thaliana is a model plant that is often used in biological research due to its relatively small, well-known genome, and its ability to grow quickly and easily in many conditions. Using this model organism, the observed molecular changes of the plant when subjected to shade and sun allows for better insight on their ability to overcome such obstacles. Here we study eight candidate genes in *Arabidopsis thaliana* that were previously identified as potentially playing a role in shade avoidance syndrome (SAS)². To determine the role of these genes, we utilized PCR to assess differences in expression between mutants lacking each of these genes. Our results will allow us to improve our understanding of how plants successfully adapt to stressful conditions.

References:

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2. **Martinez-Garcia J F, Gallemi M, Molina-Contreras M J, Llorente B, Bevilaqua M R R, Quail P H.** 2014. The shade avoidance syndrome in *Arabidopsis*: antagonistic role of Phytochrome A and B differentiates vegetation proximity and canopy shade. *PLOS One* **9**:10.