

Modifications of Source-Sink Relationships and Stress Tolerance in Crop Plants



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Drought, the most prominent threat to agricultural production worldwide, accelerates leaf senescence, leading to loss in photosynthesis and reduced yields. We hypothesized that it may be possible to enhance drought tolerance by altering sink/source relationships in the plant by altering plant hormone homeostasis. The stress-induced synthesis of cytokinins improved crops drought tolerance in both laboratory and field conditions. We applied a System Biology approach to identify genes and gene networks mediating the stress-response of crops to abiotic stress. A number of genes have been identified, and their expression has been modified in a number of crop species. In addition, we characterized a novel chloroplast degradation pathway that when genetically silenced, increased the tolerance of crops to environmental stress.

Tuesday
Oct. 25th at 4:00 PM

Berkeley Lab
Walnut Creek
JGI, Room 149A

Host: John Vogel, Environmental Genomics & Systems Biology Division