

Mechanistic Basis of Plant Adaption

Project Personnel:

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Project Summary:

There is clear and broad agreement within the scientific community that one of the most pressing grand challenges in biology is to understand how plants adapt to their complex and often unpredictable biotic and abiotic environments. The proposed workshop will aim to pull together approximately 35 of the top researcher involved in investigating the mechanistic basis of plant adaptation from both the non-crop and crop communities, including, but not limited to, the Arabidopsis, Mimulus, maize, rice and soybean communities to address this challenge. We will draw on individuals with expertise in genomics, genetics, biochemistry, physiology, quantitative analysis and more broadly from the ecological, evolutionary and phylogenetic communities, along with participants from the Geographic Information Systems (GIS) and Computer Science communities.

The proposed grand challenge workshop will allow this diverse group of participants to coalesce around the concept that an integrated cyberinfrastructure would improve the group's ability to more efficiently determine the fundamental genetic, biochemical and physiological mechanisms underlying plant adaptation, by improving cooperation and integration across laboratories, field sites and species. The cyberinfrastructure would also allow for better training in the integrative concepts underlying evolutionary genetics and plant adaptation, and also improve the education of the public on the significance of this work for agriculture and future sustainable utilization of natural resources.

Deliverables from the proposed workshop will be an outline of the agreed upon components of the required cyberinfrastructure, and the establishment of a proposal team to develop a Grand Challenge project for submission to the iPlant Collaborative. This team will have a designated leader to manage and guide development and submission of the proposal. Networks of expertise's in various critical discipline areas will also be developed to help the proposal team during development of the Grand Challenge project. Mechanisms will be established at the workshop to allow feedback on the Grand Challenge proposal from the broader community to be incorporated into the proposal before submission. Such mechanisms would likely include a community WIKI and BLOG sites.

