

## **New Imaging Approaches to Visualize Sugar Accumulation in Plants**

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Carbon partitioning is the process whereby photoassimilates are distributed from their site of synthesis in leaves to the rest of the plant. Control of carbon partitioning is crucial for plant growth and development, and underlies all aspects of crop yield. For most plants, carbon, in the form of sucrose, is loaded into the phloem and transported from leaves to non-photosynthetic tissues, such as roots, flowers, seeds, and fruits. This process is well characterized at the physiological, biochemical and anatomical levels. Yet despite the obvious importance of carbon partitioning for plant growth and yield, we still know very little about how it is regulated at the molecular level. The long-term goal of my research is to determine which genes regulate how and where carbon is allocated in plants. In addition, complementary physiological, biochemical, and cell biological approaches aid in our understanding of this process. Recent exciting investigations using new imaging approaches to visualize sucrose dynamics in plants are poised to significantly extend our knowledge of whole-plant carbohydrate partitioning.