

PLASMODESMATA – NANOPORES IN PLANT TISSUES
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Abstract: Plasmodesmata are nanochannels that permanently link adjacent plant cells. These intercellular bridges are essential in all aspects of plant life: from distributing photoassimilates for growth, tissue patterning and defense against pathogens. Understanding of plasmodesma architecture and function therefore constitutes a target for potentially transformative enhancement of food and bioenergy crop yield.

Plasmodesmata, however, represent the last major plant organelle with very little functional and structural information. This is mainly due to their nanoscale intricacy, being composed of proteins, membranes and wall material at 20 – 50 nm diameter, and the sparse understanding of the physical processes that mediate and regulate plasmodesmata transport across the cellular- and tissue scales. Current knowledge on Plasmodesma structure – function relations and potential nanoscale tools to be developed in order to study plasmodesma function will be discussed.

Bio: Michael Knoblauch is Eastlick Distinguished Professor in Plant Cell Biology and Director of the Franceschi Microscopy and Imaging Center at Washington State University in Pullman. He received his PhD from the Liebig University in Giessen Germany in 2000, was postdoc and group leader at the Fraunhofer institute for Molecular Biology and Applied Ecology, Aachen, Germany and well as at the Institute for Microtechniques in Mainz, Germany. He joined WSU in 2006