Stefan Kepinski

The Kepinski lab is focused on understanding the regulation of plant architecture by the hormone auxin, and in particular, the control of root and shoot branch growth angle. The growth angle of branches and other lateral organs is a fascinating topic in developmental biology and one of tremendous agronomic importance. For the most part root and shoot branches grow at angles that are non-vertical, a crucial adaptation allowing plants to optimise the capture of resources above- and below-ground. Importantly, many lateral branches are maintained at specific angles with respect to gravity rather than to the main or parent axis per se. These growth angles, known as gravitropic setpoint angles or GSAs, are intriguing because their maintenance requires that lateral root and shoot branches are able to effect tropic growth both with and against the gravity vector. We are using genetics, molecular genetics, cell biology, and computational modelling to understand the mechanisms underlying gravity-dependent growth angle control.