



SEB Main Meeting, Prague 2010

Plenary - Bidder Lecture

PL 1.1

17:30 Wednesday 30th June 2010

Multilevel Signaling in Plant Development

Ben Scheres (Utrecht University)

Plants have flexible cell patterning mechanisms to compensate for the lack of cell migration in their growing tips, the meristems. In the root meristem, a set of AP2-domain transcription factors encoded by the PLETHORA genes define the activity of stem cells and their daughters in a process that intimately involves the global signal auxin. Different clade members in this gene family also regulate shoot and root branching.

We apply genetics and genomics experiments to untangle the multiple feedback loops that act in these patterning systems and involve not only molecular circuits but also higher-level influences such as shape change. The 'looped' pathways that are being uncovered pose a challenge to reductionist approaches which work best in linear pathways. In an attempt to overcome these difficulties, we use experimental cycles intertwined with multilevel computational modeling.