

How is early bud growth driven at the cellular level?

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Abstract

Axillary bud initiation and outgrowth is a major factor that impacts plant architecture. Shoot branching is a result of the stimulation of axillary buds to grow into lateral branches and is controlled via a complex interplay of genetic, molecular and metabolomic networks in response to both the environment and endogenous ontogenetic cues. Great progress has been made in discovering and describing many of the hormonal and genetic pathways underlying branching, yet we have little understanding of how these hormonal and molecular changes are translated into growth at the anatomical and morphological levels. Here we are using the model plant *Pisum sativum* (garden pea) to characterise early bud growth using time-lapse photography, SEM microscopy and cell proliferation assays. Together with the identification of early transcriptional changes we aim to build a morphological and cellular framework for how hormonal and sugar signalling cues are translated into bud outgrowth and branching.