



# Apical dominance maintained by sugar limitation

Wednesday 4 June 1-2pm

## Speaker

### Christine Beveridge

Professor,  
School of Biological Sciences,  
The University of Queensland

## Location

### Slatyer Seminar Room

R.N. Robertson Building (Bldg. 46),  
Linnaeus Way, ANU

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Vigorously growing shoot tips can maintain dominance over the growth of axillary buds in a process termed apical dominance. Here we show that the shoot tip, which is a hungry consumer of mobile sugars, acts to prevent the growth of axillary buds by affecting the levels of sugars left over for the buds. Sucrose is shown as both necessary and sufficient to induce bud release. Exogenous sucrose can induce bud release in intact plants in a dynamic response similar to decapitated plants and induces the same transcription factor in buds previously reported to be regulated by plant hormones to control bud outgrowth (BRC1,

BRANCHED1). In contrast, treatments that reduce auxin content but do not increase sugar content, do not cause bud release. This discovery establishes a paradigm for apical dominance whereby sugar supply has an important regulatory role in the initial release of buds for growth and that the classical plant hormones, auxin, strigolactone and cytokinin gain in importance once this release has occurred.

## About the speaker

Christine received her PhD in 1994 from the University of Tasmania, followed by a postdoc at INRA then appointments at The University of Queensland including a UQ Postdoctoral Fellowship, an ARC Fellowship, a five-year computational biology lectureship position and now as Professor and ARC Future Fellow. Christine's research has had a common thread of the hormonal and genetic control of plant development, particularly shoot branching. She and collaborators discovered strigolactone as a plant hormone in 2008, demonstrating its important role in shoot branching. Since then, her team has shown that strigolactones affect other agronomically important traits such as adventitious rooting and secondary growth. Her group is currently working on various aspects of strigolactone biosynthesis, regulation and function. Moreover, they seek to discover and understand all of the regulatory components of shoot architecture and how they interact.

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