



## Na<sup>+</sup> transport and tolerance in higher plants

**Tester and Davenport (pp. 503–527)** provide a comprehensive review of plant responses to Na<sup>+</sup>, focusing particularly on membrane transport processes. They compare general cellular responses (such as those that enable Na<sup>+</sup> to be sequestered within cells) with cell-specific responses involved in Na<sup>+</sup> exclusion from plants and Na<sup>+</sup> management within plants.



## Radial variations in wood specific gravity

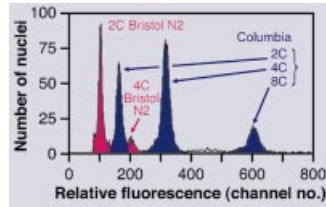
Trees often display variation in specific gravity of their wood with growth. **Woodcock and Shier (pp. 529–537)** examine differences in specific gravity associated with canopy vs. subcanopy position for three species of temperate forest tree. They conclude that successional status is a more important factor in influencing directional trends.



## Shoot–root carbon partitioning in peas

Symbiotic nitrogen fixation and nodule formation are often considered to require a large investment in carbon assimilates. **Voisin et al. (pp. 539–546)** examined the rules that drive C allocation to nodulated roots of peas. Quantitative relationships between C allocation to nodulated roots and net C photosynthesis highlight the

importance of respiration in this allocation.



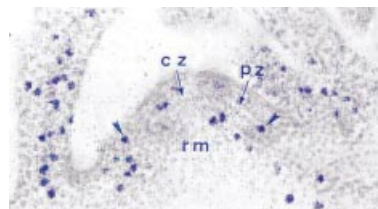
## Arabidopsis thaliana genome is much larger than ~125 Mb

The landmark paper that first reported the complete nuclear DNA sequence of *Arabidopsis thaliana* estimated its genome size as ~125 Mb and assumed that unsequenced regions contribute ~10 Mb. **Bennett et al. (pp. 547–557)** used flow cytometry to estimate DNA in *A. thaliana*, using the nematode *Caenorhabditis elegans* (size ~100 Mb) as a benchmark standard. They conclude that 125 Mb underestimates the arabidopsis genome by 25 %. The true genome size appears to be ~157 Mb.



## Influence of elevated CO<sub>2</sub> and O<sub>3</sub> on *Betula pendula* crown structure

Human activities increase tropospheric ozone and CO<sub>2</sub> concentrations. **Kull et al. (pp. 559–569)** show that elevated CO<sub>2</sub> ameliorates a negative ozone effect on branching frequency of birch, causing shoots to grow longer and produce more leaves.



## Changes in the *Arabidopsis thaliana* apex at floral transition

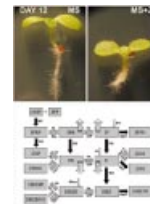
**Jacqard et al. (pp. 571–576)** analyse rate of cell division and morphology in

the shoot apical meristem (SAM) of 2-month-old arabidopsis plants before and after induction of flowering by 1 long day (LD). Mitotic activity is shown to increase 24 h after the start of the LD and is followed by SAM enlargement and doming after 44 and 48 h, respectively.



## Impact of light on leguminous shrub development

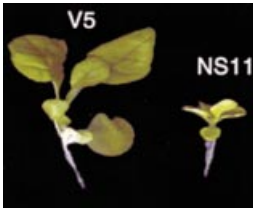
Phenotypic plasticity in seedlings of six green-stemmed leguminous shrubs in response to light is assessed by **Valladares et al. (pp. 577–584)**. They show that survival in deep shade increases significantly with increasing ratios of leaf to total photosynthetic area, and that responses to light differ between stems and leaves within each species.



## Cytokinin metabolism in tobacco

Using LC/MS/MS, **Lexa et al. (pp. 585–597)** measure 22 cytokinin metabolites in tobacco seedlings fed isopentenyladenine, zeatin and dihydrozeatin riboside. A mathematical model of cytokinin interconversions in plants gives a close match between simulated and observed dynamics of endogenous cytokinins. Performance of the model is improved by applying a series of iterative parameter changes based on the experimental results.

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### **Over-expression of CAP causes organ size reduction**

Cyclase-associated protein (CAP) is a multifunctional protein involved in signal transduction and regulation of actin cytoskeleton. **Barrero *et al.* (pp. 599–603)** show that over-expression of *AtCAP1* in transgenic tobacco plants decreased leaf organ size by reducing cell expansion in both epidermal and mesophyll cells.