

## COVER

Finite element method simulation of an *Arabidopsis* shoot apical meristem where two cells have been laser-ablated. The color map indicates the von Mises stress (a measure of distortional stress); the white lines mark the directions of maximal principal stress, which are circumferential around the ablated cells, in agreement with experimentally determined microtubule orientations. See page 1650.

Image: Pawel Krupinski/Lund University

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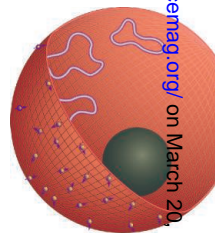
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High magnetic fields can strip away the superconducting regime of a cuprate superconductor, revealing the presence of an enigmatic quantum critical point.

10.1126/science.1165015

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Femtosecond XANES Study of the Light-Induced Spin Crossover Dynamics in an Iron(II) Complex

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X-ray absorption spectroscopy resolves the dynamics of spin-state interconversions, which take place in less than a picosecond, in a well-studied class of iron compounds.

10.1126/science.1165733

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10.1126/science.1163183

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A. Kawahara et al.

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10.1126/science.1167449

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N. Phadnis and H. A. Orr

A *Drosophila* gene that causes sterility in the offspring of two species and may be important for speciation causes increased transmission of itself to progeny.

10.1126/science.1163934

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A Mouse Speciation Gene Encodes a Meiotic Histone H3 Methyltransferase

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A gene responsible for sterility in the offspring of two mouse species, and therefore important in speciation, regulates gene expression via methylation in chromatin.

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Data from over 4500 elephants show that wild elephants live for approximately twice as long as those kept in European zoos.

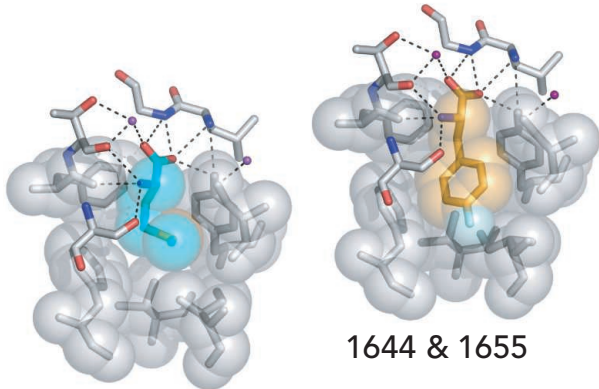
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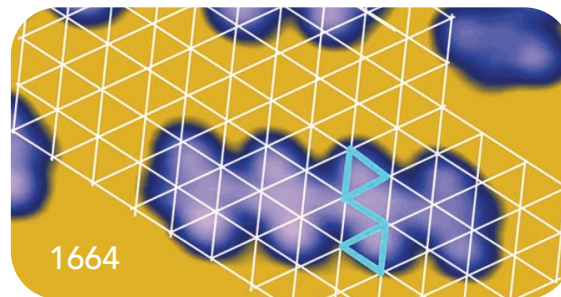
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*A. M. VanHook*

Cell signaling events play a key role in the induction, regulation, and maintenance of organ development.

### RESEARCH ARTICLE: Analysis of Metagene Portraits Reveals Distinct Transitions During Kidney Organogenesis

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### REVIEW: De Novo Organ Formation from Differentiated Cells—Root Nodule Organogenesis

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### PERSPECTIVE: Intercellular Peptide Signals Regulate Plant Meristematic Cell Fate Decisions

*J. E. Gray, S. Casson, L. Hunt*

By controlling stem cell fate, secreted peptides control the formation of many plant cell types.



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