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 AAAS

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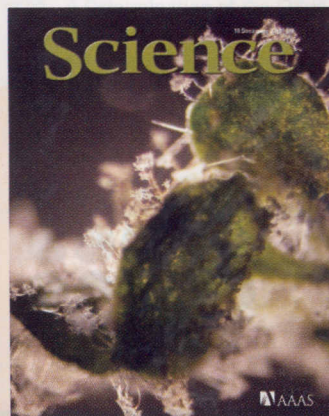
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COVER

An *Arabidopsis thaliana* seedling with downy mildew disease, caused by the oomycete pathogen *Hyaloperonospora arabidopsidis*. Four Reports beginning on page 1540 present comparative genomic analyses of several plant pathogens that shed light on their biology, including their virulence, dependence upon their host, and host specificity. Included are pathogens responsible for economically devastating diseases in crop plants. Also see the related Perspective on page 1486.

Photo: Ryan Anderson and John McDowell, Virginia Polytechnic Institute and State University

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- 1502** Slow Earthquakes Linked Along Dip in the Nankai Subduction Zone
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Three types of temporally linked slow earthquakes may limit nearby buildup of stress.

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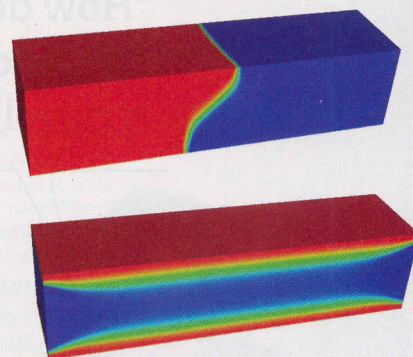
- 1503** The Impact of Conservation on the Status of the World's Vertebrates
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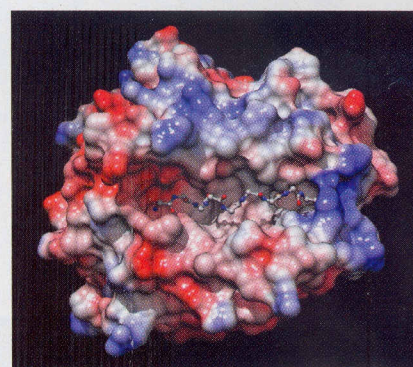
- 1510** Toroidal Dipolar Response in a Metamaterial
T. Kaelberer et al.
A material that embeds metal wire loops in a dielectric has properties consistent with an exotic electromagnetic excitation.
- 1512** Evidence of Supersolidity in Rotating Solid Helium
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Measurements on rotating frozen helium support the formation of a quantum, or supersolid, phase.
- 1515** In Situ Observation of the Electrochemical Lithiation of a Single SnO₂ Nanowire Electrode
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- 1546** Pathogenicity Determinants in Smut Fungi Revealed by Genome Comparison
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- 1549** Signatures of Adaptation to Obligate Biotrophy in the *Hyaloperonospora arabidopsidis* Genome
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- 1551** The Major Genetic Determinants of HIV-1 Control Affect HLA Class I Peptide Presentation
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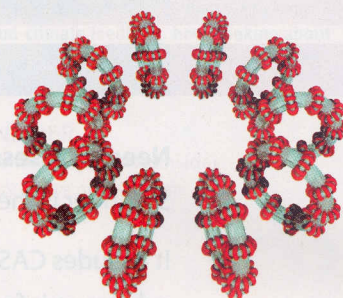
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Direct Conversion of *C. elegans* Germ Cells into Specific Neuron Types

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10.1126/science.1199082

Rotational Movement of the Formin mDia1 Along the Double Helical Strand of an Actin Filament

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Visualization of formin protein rotating along an actin filament gives insight into how it promotes actin assembly.
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Decreased Clearance of CNS β -Amyloid in Alzheimer's Disease

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Alzheimer's disease is associated with reduced β -amyloid clearance from the brain.
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Universal Quantum Viscosity in a Unitary Fermi Gas

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Tunable Field-Control over the Binding Energy of Single Dopants by a Charged Vacancy in GaAs

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The electrostatic field of manganese atoms in gallium arsenide depends on its distance from a nearby arsenic vacancy site.
10.1126/science.1197434

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Highlights From Our Daily News Coverage

How Swine Flu Killed the Healthy

New research suggests that patients' own immune systems could have turned against them.

Killer Whales Mimic Friends and Foes

Orcas that do not share the same dialect can still copy one another's calls.

Did Climate Change Drive Prehistoric Culture Change?

Early Americans may have dramatically altered their life-styles in response to new weather patterns.

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EDITORIAL GUIDE: Focus Issue—

Metabolic Signals

W. Wong

Complementing the 3 December *Science* special issue, this issue highlights signaling pathways with roles in metabolism.

RESEARCH ARTICLE: A Kinase-Independent Role for Unoccupied Insulin and IGF-1 Receptors in the Control of Apoptosis

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PERSPECTIVE: Dependence Receptors—The Trophic Theory Revisited

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Cells lacking both insulin and IGF-1 receptors are resistant to apoptosis.

RESEARCH ARTICLE: Regulation of the 26S Proteasome Complex During Oxidative Stress

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PODCAST

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Oxidative stress triggers release of the core catalytic subunit of the yeast 26S proteasome, enabling degradation of toxic oxidized proteins.

PERSPECTIVE: Lipid Signaling and Homeostasis—PA Is Better than PA-H, But What About Those PIPs?

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Phosphatidic acid links changes in pH triggered by glucose metabolism to phospholipid biogenesis in yeast.

RESEARCH RESOURCE: ATM-Dependent and -Independent Dynamics of the Nuclear Phosphoproteome After DNA Damage

A. Bensimon et al.

Quantitative phosphoproteomics suggests kinases other than ATM participate in the initial phase of the cellular response to DNA double-strand breaks.

PROTOCOL: Planar Patch Clamp Approach to Characterize Ionic Currents from Intact Lysosomes

M. Schieder et al.

Glass chips and gentle isolation are the keys to recording channels from intracellular organelles.

SCIENCECAREERS

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Free Career Resources for Scientists

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Scientists working in and around the United Kingdom's National Health Service can make a direct impact on public health.

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A rhetorician reports the results of his research on communicating with the National Science Foundation.

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Integrating Medicine and Science

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REVIEW: Lost in Translation—Neuropsychiatric Drug Development

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RESEARCH ARTICLE: Gene from a Psoriasis Susceptibility Locus Primes the Skin for Inflammation

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RESEARCH ARTICLE: Maternal Plasma DNA Sequencing Reveals the Genome-Wide Genetic and Mutational Profile of the Fetus

Y. M. D. Lo et al.

Sequencing plasma DNA from a pregnant woman permits prenatal genome-wide scanning for mutations in fetal DNA.

MEETING REPORT: A Crisis of Public Confidence in Vaccines

S. Black and R. Rappuoli

This meeting report summarizes the outcome of a meeting held in July 2010 in Siena, Italy.

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Science Policy News and Analysis

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