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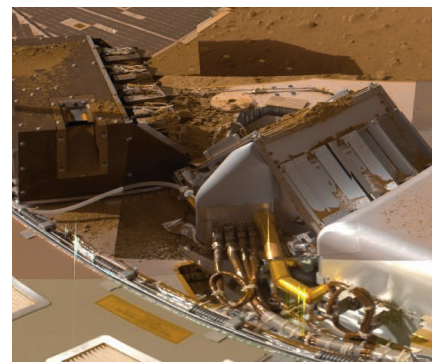
## REVIEW

- 1298 **Biodiversity Conservation: Challenges Beyond 2010**  
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- 1305 **Pulsar Discovery by Global Volunteer Computing**  
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## COVER

Seeds in storage containers destined for the Millennium Seed Bank, a conservation project run by Kew Gardens, UK, which now houses 10 percent of the world's plant species as seeds. The conservation of biodiversity is in the spotlight as scientists, nongovernmental organizations, and politicians prepare for the Convention on Biological Diversity in Nagoya, Japan, in October 2010. See the special News Focus section beginning on page 1272 and the Review on page 1298.

*Photo: Bryan and Cherry Alexander/Alamy*

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Oscillations in gene expression define the positions of periodic lateral roots in a plant model.

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- 1312 A Transient and Low-Populated Protein-Folding Intermediate at Atomic Resolution

D. M. Korzhnev et al.

Nuclear magnetic resonance and computational methods are combined to determine the structure of “invisible” excited protein states.

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- 1316 Electromechanical Computing at 500°C with Silicon Carbide

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- 1318 A Red-Shifted Chlorophyll

M. Chen et al.

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- 1320 Coherence Resonance in a Single-Walled Carbon Nanotube Ion Channel

C. Y. Lee et al.

Opened, water-filled carbon nanotubes can exhibit oscillations in proton conductivity when alkali ions are present.

- 1324 Ion-Mediated Electron Transfer in a Supramolecular Donor-Acceptor Ensemble

J. S. Park et al.

Electron transfers in a weakly bound molecular complex are driven forward by anions and backward by cations.

- 1327 Nonthermal Current-Stimulated Desorption of Gases from Carbon Nanotubes

A. Salehi-Khojin et al.

Electric current can desorb strongly bound molecules from nanotube-based chemical sensors.

- 1330 Future CO<sub>2</sub> Emissions and Climate Change from Existing Energy Infrastructure

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Operation of current energy infrastructure through its projected lifetime would limit carbon dioxide increases to 10 percent.

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- 1334 Stable Isotope Measurements of Martian Atmospheric CO<sub>2</sub> at the Phoenix Landing Site

P. B. Niles et al.

Mass spectrometric measurements constrain the history of water, volcanism, and climate evolution on Mars.

>> *News story p. 1267*

- 1337 Planar Cell Polarity Acts Through Septins to Control Collective Cell Movement and Ciliogenesis

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- 1345 Aryl Hydrocarbon Receptor Antagonists Promote the Expansion of Human Hematopoietic Stem Cells

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The identification of a mechanism for ex vivo amplification may facilitate clinical application of hematopoietic stem cell therapies.

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- 1348 Human SIRT6 Promotes DNA End Resection Through CtIP Deacetylation

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A protein implicated in stress, aging, and genome stability is required for the accurate repair of broken DNA.

- 1353 Hemocyte Differentiation Mediates Innate Immune Memory in *Anopheles gambiae* Mosquitoes

J. Rodrigues et al.

Early immune priming limits malaria parasite infection of mosquitoes.

- 1355 Sequence- and Structure-Specific RNA Processing by a CRISPR Endonuclease

R. E. Haurwitz et al.

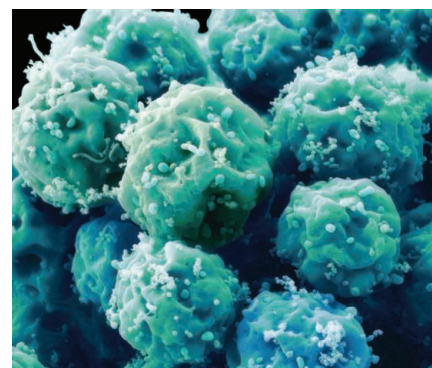
How a prokaryotic immune system makes small RNAs that target invading nucleic acids.

- 1358 Prediction of Individual Brain Maturity Using fMRI

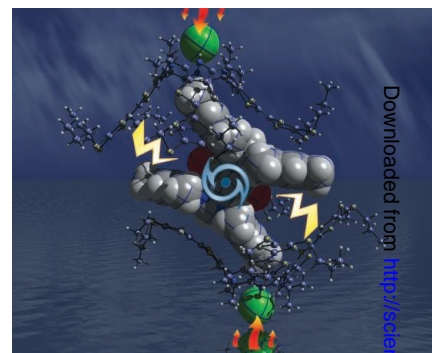
N. U. F. Dosenbach et al.

Multivariate pattern analysis of 5-minute brain scans provides a measure of brain maturity.

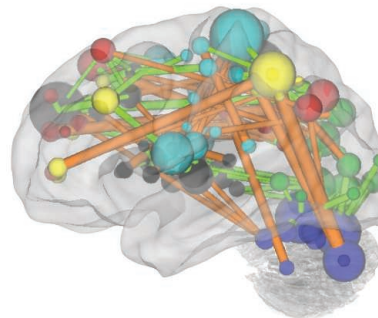
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## SCIENCEONLINE

## SCIENCEEXPRESS

[www.sciencexpress.org](http://www.sciencexpress.org)

**Frequent Mutations of Chromatin Remodeling Gene *ARID1A* in Ovarian Clear Cell Carcinoma**

*S. Jones et al.*

Genetic analysis of a rare but aggressive form of ovarian cancer implicates a chromatin remodeling defect in disease development.

10.1126/science.1196333

**Greater Neural Pattern Similarity Across Repetitions Is Associated with Better Memory**

*G. Xue et al.*

Similarity in neural representations is associated with better memory, as well as conscious cognition.

10.1126/science.1193125

**Cellodextrin Transport in Yeast for Improved Biofuel Production**

*J. M. Galazka et al.*

Reconstitution of a fungal transport system allows yeast to grow on sugars derived from cellulose.

10.1126/science.1192838

**Tau Reduction Prevents A $\beta$ -Induced Defects in Axonal Transport**

*K. A. Vossel et al.*

A mechanism for the protective effects of tau reduction in mouse models of Alzheimer's disease.

10.1126/science.1194653

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**Universal Dynamical Decoupling of a Single Solid-State Spin from a Spin Bath**

*G. de Lange et al.*

The coherence time of single spins is extended by a sequence of microwave pulses.

10.1126/science.1192739

**Neutrino Spectroscopy Can Probe the Dark Matter Content in the Sun**

*I. Lopes and J. Silk*

Dark matter in the center of the Sun would affect its internal structure and lead to a distinctive neutrino emission pattern.

10.1126/science.1196564

## SCIENCE NOW

[www.sciencenow.org](http://www.sciencenow.org)

Highlights From Our Daily News Coverage

**Forget Mice, Elephants Really Hate Ants**  
An aversion to biting ants keeps elephants from ravaging the savanna.

**How Fish Oil Fights Inflammation**

Omega-3 fatty acids work via a specific receptor and may combat diabetes as well.

**'Impossible' Soccer Goal Explained**  
by New Twist on Curveball Physics

Analysis of stunning kick shows how spinning balls follow spiral paths.

## SCIENCE SIGNALING

[www.sciencesignaling.org](http://www.sciencesignaling.org)

The Signal Transduction Knowledge Environment

**EDITORIAL GUIDE: Looking Ahead to the Past**

*M. B. Yaffe*

Chief Scientific Editor Michael Yaffe makes his predictions for exciting new areas of signaling-related research.

**JOURNAL CLUB: Receptor Tyrosine Kinase Transmembrane Domain Interactions—Potential Target for “Interceptor” Therapy**

*A. Kajanajmudeen*

Disrupting intermolecular interactions between transmembrane domains is a potential method for attenuating signaling through receptor tyrosine kinases.

**PERSPECTIVE: NF- $\kappa$ B—Much Learned, Much to Learn**

*B. Razani and G. Cheng*

The book *NF- $\kappa$ B: A Network Hub Controlling Immunity, Inflammation, and Cancer* provides an overview of various aspects of NF- $\kappa$ B signaling.

## SCIENCE CAREERS

[www.sciencereers.org/career\\_magazine](http://www.sciencereers.org/career_magazine)

Free Career Resources for Scientists

**Mind Matters: Anxiety in the Workplace**

*I. Levine*

Everyone feels a bit nervous from time to time, but excessive anxiety can be disabling and derail careers.

**Testing Mother Earth's Resilience**

*E. Pain*

Growing up in Kruger National Park in South Africa allowed Reinette Biggs to shape her research career in unusual ways.

## SCIENCE TRANSLATIONAL MEDICINE

[www.sciencetranslationalmedicine.org](http://www.sciencetranslationalmedicine.org)

Integrating Medicine and Science

**PERSPECTIVE: Genome-Wide Association Studies Identify New Targets in Cardiovascular Disease**

*A. C. Calkin and P. Tontonoz*

Analysis indicates that increasing expression of the *SORT1* gene in the liver has beneficial effects on blood lipid levels.

**RESEARCH ARTICLE: Integration of Early Physiological Responses Predicts Later Illness Severity in Preterm Infants**

*S. Saria et al.*

Physiological parameters routinely and noninvasively collected in the first 3 hours of life can accurately predict morbidity in premature infants.



## SCIENCE SIGNALING

Alice, the White Queen, and seemingly impossible things.

**RESEARCH ARTICLE: Nuclear Phospho-Akt Increase Predicts Synergy of PI3K Inhibition and Doxorubicin in Breast and Ovarian Cancer**

*J. J. Wallin et al.*

**PERSPECTIVE: Targeting a Common Collaborator in Cancer Development**

*A. P. Myers and L. C. Cantley*

A small molecule inhibitor of phosphatidylinositol 3-kinase enhances the cytotoxic effects of the common chemotherapeutic agent doxorubicin in breast and ovarian cancer cell lines.

## SCIENCE PODCAST

[www.sciencemag.org/multimedia/podcast](http://www.sciencemag.org/multimedia/podcast)

Free Weekly Show

Download the 10 September *Science* Podcast to hear about estimating future CO<sub>2</sub> emissions from existing energy infrastructure, global biodiversity, the protein tau in Alzheimer's disease, and more.

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Science Policy News and Analysis

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**329 (5997)**

*Science* **329** (5997), 1253-1376.

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