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# Science



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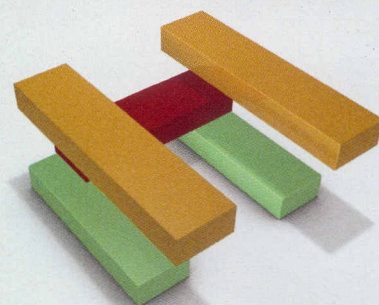
## BREVIA

- 1395 Displacement Above the Hypocenter of the 2011 Tohoku-Oki Earthquake  
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## COVER

Devastation in Rikuzentakada, Miyagi Prefecture, Japan, following the 11 March 2011 magnitude 9.0 Tohoku-Oki earthquake, which triggered a tsunami that killed more than 20,000 people and a nuclear disaster at the Fukushima Daiichi power plant. Three research papers (pp. 1395, 1421, and 1426) describe the mechanics of the earthquake, determined from seismological and geodetic observations.

Photo: Mainichi Newspaper/AFLO/Newscom

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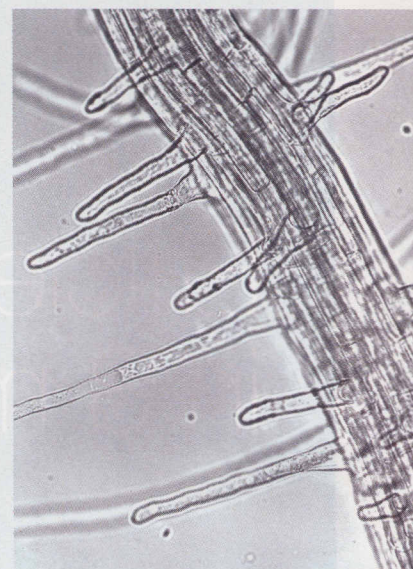
- 1396** EPOXI at Comet Hartley 2  
M. F. A'Hearn et al.  
In situ observations show that comet Hartley 2 is an unusually hyperactive comet.
- 1401** O-Glycosylated Cell Wall Proteins Are Essential in Root Hair Growth  
S. M. Velasquez et al.  
Sequential protein posttranslational modifications facilitate cell wall self-assembly and root hair elongation in *Arabidopsis*.  
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## REPORTS

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- 1407** Three-Dimensional Plasmon Rulers  
N. Liu et al.  
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- 1410** Direct Observation of Nodes and Twofold Symmetry in FeSe Superconductor  
C.-L. Song et al.  
Scanning tunneling spectroscopy suggests an orbital ordering mechanism for electron pairing in an iron-based superconductor.
- 1413** Thermal Structure and Dynamics of Saturn's Northern Springtime Disturbance  
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Satellite and ground-based observations characterize a massive storm on Saturn and its effects on the atmosphere.
- 1417** The 2010  $M_w$  8.8 Maule Megathrust Earthquake of Central Chile, Monitored by GPS  
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- 1421** The 2011 Magnitude 9.0 Tohoku-Oki Earthquake: Mosaicking the Megathrust from Seconds to Centuries  
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New cogs in the mammalian circadian clock are identified.
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## SCIENCEONLINE

## SCIENCEEXPRESS

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

**A Possible Relativistic Jetted Outburst from a Massive Black Hole Fed by a Tidally Disrupted Star**  
J. S. Bloom et al.

10.1126/science.1207150

**An Extremely Luminous Panchromatic Outburst from the Nucleus of a Distant Galaxy**

A. J. Levan et al.

A recent bright emission observed by the Swift satellite is due to the sudden accretion of a star onto a massive black hole.

10.1126/science.1207143

**Adipose Triglyceride Lipase Contributes to Cancer-Associated Cachexia**

S. K. Das et al.

Ablation of a gene controlling fat breakdown can protect mice from cancer-associated uncontrolled loss of fat and muscle.

10.1126/science.1198973

>> *Science Podcast*

**De-AMPylation of the Small GTPase Rab1 by the Pathogen *Legionella pneumophila***

M. R. Neunuebel et al.

A bacterial pathogen reverses the modification of a host cell protein involved in membrane trafficking.

10.1126/science.1207193

**Terraces in Phylogenetic Tree Space**

M. J. Sanderson et al.

Analysis of terraces in phylogenetic space can inform on phylogenetic relationships with greater computational efficiency.

10.1126/science.1206357

## SCIENCENOW

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

Highlights From Our Daily News Coverage

**A Cell Becomes a Laser**

An advance bodes well for light-based medicine.

<http://scim.ag/cell-laser>

**Can Brain Scans Predict Music Sales?**

A new study correlates activity in teenagers' neural reward circuitry with song sales 3 years later.

<http://scim.ag/brain-music>

**Magnets Keep Blood Flowing**

Researchers show that magnetic fields can reduce blood viscosity, a leading cause of heart attacks and strokes.

<http://scim.ag/blood-magnets>

## SCIENCE SIGNALING

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

The Signal Transduction Knowledge Environment

14 June issue: <http://scim.ag/ss061411>

**RESEARCH ARTICLE: Structure of a Pentavalent G-Actin•MRTF-A Complex Reveals How G-Actin Controls Nucleocytoplasmic Shuttling of a Transcriptional Coactivator**

S. Mouilleron et al.

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R. Treisman et al.

Binding of multimeric actin inhibits a transcriptional coactivator by promoting nuclear export and blocking nuclear import.

**RESEARCH ARTICLE: TRPS1 Targeting by miR-221/222 Promotes the Epithelial-to-Mesenchymal Transition in Breast Cancer**

S. Stinson et al.

The microRNAs miR-221 and miR-222 promote a phenotype associated with metastasis and are found in a clinically aggressive form of breast cancer.

**PERSPECTIVE: IKKε—A Kinase at the Intersection of Signaling and Membrane Traffic**

G. W. Gould

IKKε-mediated phosphorylation events may redirect endosomal traffic by switching the motor proteins associated with vesicles.

## SCIENCE TRANSLATIONAL MEDICINE

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

Integrating Medicine and Science

15 June issue: <http://scim.ag/stm061511>

**PERSPECTIVE: Breaking Free of Sample Size Dogma to Perform Innovative Translational Research**

P. Bacchetti et al.

Abandoning false beliefs about sample size planning would facilitate funding and conduct of innovative clinical research with small sample sizes.

**REPORT: Whole-Genome Sequencing for Optimized Patient Management**

M. N. Bainbridge et al.

**PERSPECTIVE: Deep Sequencing of Patient Genomes for Disease Diagnosis—When Will It Become Routine?**

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Whole-genome sequencing enabled tailoring of drug therapy for fraternal twins with a movement disorder.

**RESEARCH ARTICLE: Inhibition of Transplantation Tolerance by Immune Senescence Is Reversed by Endocrine Modulation**

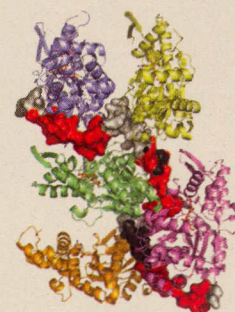
G. Zhao et al.

Immune senescence causes resistance to transplantation tolerance that can be functionally restored by targeting sex steroid production.

**RESEARCH ARTICLE: The Role of Dimethylarginine Dimethylaminohydrolase in Idiopathic Pulmonary Fibrosis**

S. S. Pullamsetti et al.

Inhibition of a methylarginine-degrading enzyme attenuates build-up of excess cells and collagen in pulmonary fibrosis.



SCIENCE SIGNALING  
Inhibited by G-actin.

## SCIENCE CAREERS

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

Free Career Resources for Scientists

**Presentation Tips for Non-Native Speakers**

E. Pain

Conveying complex material during a scientific presentation is especially challenging for speakers not fluent in the conference language.

<http://scim.ag/presentation-non-native>

**Tooling Up: Find an Outlet for Stress or Move On**

D. Jensen

Workplace stress is intensifying in the sciences.

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## SCIENCE PODCAST

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On the 17 June Science Podcast: wasting syndrome associated with cancer, managing malaria in Zanzibar, insights from plant genomes, and more.

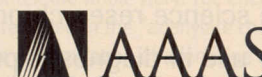
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Science Policy News and Analysis

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