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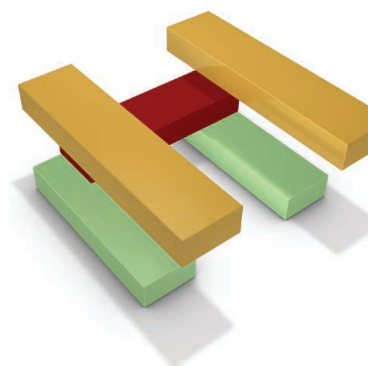
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- 1395 Displacement Above the Hypocenter of the 2011 Tohoku-Oki Earthquake  
*M. Sato et al.*  
Detailed geophysical measurements reveal features of the 2011 Tohoku-Oki megathrust earthquake.  
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## 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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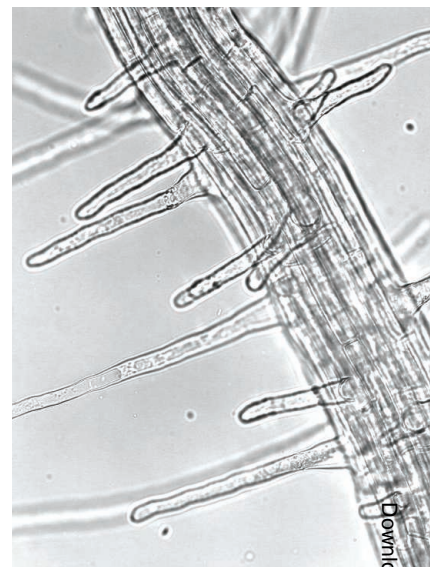
- 1396 **EPOXI at Comet Hartley 2**  
M. F. A'Hearn et al.  
In situ observations show that comet Hartley 2 is an unusually hyperactive comet.
- 1401 **O-Glycosylated Cell Wall Proteins Are Essential in Root Hair Growth**  
S. M. Velasquez et al.  
Sequential protein posttranslational modifications facilitate cell wall self-assembly and root hair elongation in *Arabidopsis*.  
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## REPORTS

- 1404 **Long-Range Topological Order in Metallic Glass**  
Q. Zeng et al.  
The pressure-induced formation of a single crystal reveals the metallic glass  $\text{Ce}_{75}\text{Al}_{25}$  to have long-range ordering.
- 1407 **Three-Dimensional Plasmon Rulers**  
N. Liu et al.  
The optical response of a fabricated nanostructure can be used to determine distances in three dimensions.  
>> *Perspective p. 1389*
- 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**  
L. N. Fletcher et al.  
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**  
C. Vigny et al.  
Rupture kinematics of this very large earthquake were obtained from high-resolution Global Positioning System data.  
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- 1421 **The 2011 Magnitude 9.0 Tohoku-Oki Earthquake: Mosaicking the Megathrust from Seconds to Centuries**  
M. Simons et al.
- 1426 **Shallow Dynamic Overshoot and Energetic Deep Rupture in the 2011  $M_w$  9.0 Tohoku-Oki Earthquake**  
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- 1429 **TFEB Links Autophagy to Lysosomal Biogenesis**  
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- 1436 **A Molecular Mechanism for Circadian Clock Negative Feedback**  
H. A. Duong et al.  
New cogs in the mammalian circadian clock are identified.
- 1439 **Direct Ubiquitination of Pattern Recognition Receptor FLS2 Attenuates Plant Innate Immunity**  
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- 1443 **SIRT6 Promotes DNA Repair Under Stress by Activating PARP1**  
Z. Mao et al.  
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- 1446 **The Visual Impact of Gossip**  
E. Anderson et al.  
Negative gossip about a person renders that person's face more visible to the onlooker.

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## SCIENCEONLINE

## SCIENCEEXPRESS

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

A bacterial pathogen 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

## SCIENCE NOW

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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. Moulleron et al.*

## PODCAST

*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**

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

*S. F. Kingsmore and C. J. Saunders*

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.

<http://scim.ag/toolingup-stress>

## 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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