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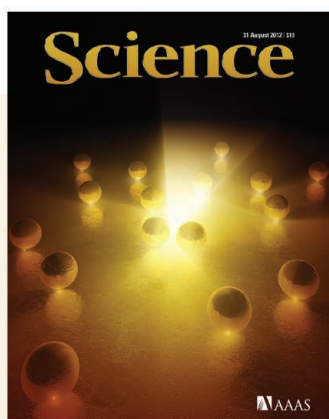


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## COVER

Artist's rendering of the film-nanoparticle plasmonic system. Spherical gold nanoparticles are coupled to a gold film substrate by means of an ultrathin layer that prevents the particles from directly touching the film. Electromagnetic ultrahot spots are excited in the gaps. The system enables the exploration of light interactions occurring on a scale of a few tenths of a nanometer, the diameter of a typical atom. See page 1072.

*Image: Sebastian Nicosia and Cristian Ciraci*

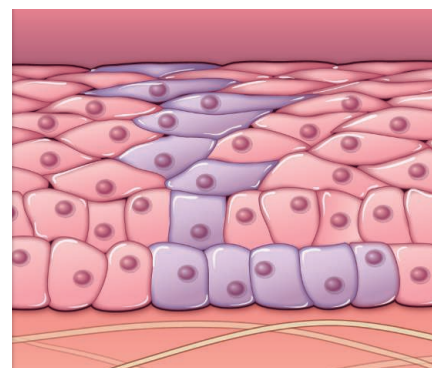
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- 1069** Conduction of Ultracold Fermions Through a Mesoscopic Channel  
J.-P. Brantut et al.  
Lithium atoms are used to simulate electronic transport.
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The nonlocal dielectric response of metals places a fundamental limit on the performance of plasmonic optical devices.
- 1075** Biogenic Potassium Salt Particles as Seeds for Secondary Organic Aerosol in the Amazon  
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Potassium salt particles account for the previously mysterious initiation sites of aerosol growth above the Amazonian rainforest.  
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- 1078** Radiative Absorption Enhancements Due to the Mixing State of Atmospheric Black Carbon  
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Direct measurements show that ambient atmospheric particulate black carbon absorbs less solar radiation than theory suggested.
- 1081** A Gain-of-Function Polymorphism Controlling Complex Traits and Fitness in Nature  
K. V. S. K. Prasad et al.  
Positive selection for a mutation that enhances resistance to herbivory in the model plant *Boechera* is described.
- 1084** Arbuscular Mycorrhizal Fungi Increase Organic Carbon Decomposition Under Elevated CO<sub>2</sub>  
L. Cheng et al.  
Counter to expectations, fungi associated with plant roots diminish the carbon pool in soil ecosystems under elevated levels of carbon dioxide.  
>> *Perspective p. 1049*
- 1087** How the Cucumber Tendril Coils and Overwinds  
S. J. Gerbode et al.  
Plants climb via lifelines that are a mix of strength and flexibility.
- 1091** A Single Progenitor Population Switches Behavior to Maintain and Repair Esophageal Epithelium  
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Dividing cells in the mouse esophagus contribute to wound healing without the need for quiescent stem cells.  
>> *Perspective p. 1051*
- 1094** Identification of Small Molecule Activators of Cryptochrome  
T. Hirota et al.  
A small molecule binds to a core protein in the circadian clock and slows down time.
- 1097** Extreme Bendability of DNA Less than 100 Base Pairs Long Revealed by Single-Molecule Cyclization  
R. Vafabakhsh and T. Ha  
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W. W. Metcalf et al.  
The archaeon *Nitrosopumilus maritimus* makes what may be a major source of ocean methane.
- 1107** The Shared Antibiotic Resistome of Soil Bacteria and Human Pathogens  
K. J. Forsberg et al.  
Perfect identity between antibiotic resistance genes in farmland soil bacteria and human pathogens suggests direct transfer.  
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- 1111** TLR13 Recognizes Bacterial 23S rRNA Devoid of Erythromycin Resistance-Forming Modification  
M. Oldenburg et al.  
A region of ribosomal RNA that confers antibiotic resistance is also recognized by mouse innate immune receptors.
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S. Naik et al.  
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## SCIENCEONLINE

## SCIENCEEXPRESS

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

### Kepler-47: A Transiting Circumbinary Multiplanet System

J. A. Orosz et al.

Data from the Kepler space telescope reveal two small planets orbiting a pair of two low-mass stars.  
10.1126/science.1228380

### A High-Coverage Genome Sequence from an Archaic Denisovan Individual

M. Meyer et al.

A close-up look provides clues to the relationships between modern humans, Denisovans, and Neandertals.  
10.1126/science.1224344

>> *News story p. 1028*

### Transcriptional Architecture and Chromatin Landscape of the Core Circadian Clock in Mammals

N. Koike et al.

A 1-day reconstruction of transcriptional events reveals the influence of the circadian clock across the genome.  
10.1126/science.1226339

### Processing and Subcellular Trafficking of ER-Tethered EIN2 Control Response to Ethylene Gas

H. Qiao et al.

The plant hormone ethylene triggers cleavage and translocation to the nucleus of a signaling component.  
10.1126/science.1225974

### Disulfide Rearrangement Triggered by Translocon Assembly Controls Lipopolysaccharide Export

S.-S. Chng et al.

Protein-protein interactions promote oxidative protein folding during assembly of a bacterial lipopolysaccharide exporter.  
10.1126/science.1227215

## TECHNICAL COMMENTS

### Comment on "Intensifying Weathering and Land Use in Iron Age Central Africa"

K. Neumann et al.

Full text at [www.sciencemag.org/cgi/content/full/337/6098/1040-c](http://www.sciencemag.org/cgi/content/full/337/6098/1040-c)

### Comment on "Intensifying Weathering and Land Use in Iron Age Central Africa"

J. Maley et al.

Full text at [www.sciencemag.org/cgi/content/full/337/6098/1040-d](http://www.sciencemag.org/cgi/content/full/337/6098/1040-d)

### Response to Comments on "Intensifying Weathering and Land Use in Iron Age Central Africa"

G. Bayon et al.

Full text at [www.sciencemag.org/cgi/content/full/337/6098/1040-e](http://www.sciencemag.org/cgi/content/full/337/6098/1040-e)

## SCIENCE NOW

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

### Highlights From Our Daily News Coverage

#### What Time Is It on Your Circadian Clock?

Researchers find an easier way to determine our internal body time.

<http://scim.ag/Circadian-Clock>

#### New Computer Memory Material Goes Easy on the Juice

Organic compounds could help retain data without a continuous trickle of electricity.

<http://scim.ag/Organic-Compounds>

#### Genome Sequencing Clears Up a Cancer Medical Mystery

A mutation in a patient's tumor explains her rare response to a new drug.

<http://scim.ag/Medical-Mystery>

## SCIENCE SIGNALING

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

The Signal Transduction Knowledge Environment

**28 August issue: <http://scim.ag/ss082812>**

### RESEARCH ARTICLE: A VASP-Rac-Soluble Guanylyl Cyclase Pathway Controls cGMP Production in Adipocytes

K. Jennissen et al.

Targeting the cGMP effector VASP may enhance metabolism by stimulating the activity and abundance of brown adipocytes.

### RESEARCH ARTICLE: The Complex of G Protein Regulator RGS9-2 and G $\beta_5$ Controls Sensitization and Signaling Kinetics of Type 5 Adenylyl Cyclase in the Striatum

K. Xie et al.

By suppressing cAMP production in the striatum, the RGS9-2/G $\beta_5$  complex could affect the development of opioid addiction.

### PERSPECTIVE: Do Pancreatic $\beta$ cells "Taste" Nutrients to Secrete Insulin?

J.-C. Henquin

The role of  $\beta$  cell taste receptors in the control of insulin secretion is unclear.

## PODCAST

G. Wang and A. M. VanHook

A protease can help protect against neurodegeneration by preventing inflammation in microglia.

## SCIENCE TRANSLATIONAL MEDICINE

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

### Integrating Medicine and Science

**29 August issue: <http://scim.ag/stm082912>**

### RESEARCH ARTICLE: Clonal Evolution of Preleukemic Hematopoietic Stem Cells Precedes Human Acute Myeloid Leukemia

M. Jan et al.

Exome sequencing and single-cell analysis reveal that a clonal progression of mutations in hematopoietic stem cells precedes human acute myeloid leukemia.

### RESEARCH ARTICLE: A Dense Poly(Ethylene Glycol) Coating Improves Penetration of Large Polymeric Nanoparticles Within Brain Tissue

E. A. Nance et al.

Nanoparticles densely coated with poly(ethylene glycol) rapidly penetrate within mouse, rat, and human brain parenchyma.

### RESEARCH ARTICLE: The Stoichiometric Production of IL-2 and IFN- $\gamma$ mRNA Defines Memory T Cells That Can Self-Renew After Adoptive Transfer in Humans

A. Wang et al.

Cytokines can identify memory T cells used for cancer immunotherapy.

### FOCUS: FDA Oversight of Cell Therapy Clinical Trials

P. Au et al.

The U.S. Food and Drug Administration applies regulatory flexibility to balance benefits and risks to participants in cell-therapy clinical trials.

### FOCUS: Designing a Public Square for Research Computing

D. R. Masys et al.

The use of a set of principles when designing research computing applications can increase the likelihood of successful adoption by researchers.

## SCIENCE CAREERS

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

### Helping Paralympians Go for Gold

E. Pain

Sports biomechanics researcher Barry Mason works on improving wheelchair design for basketball and rugby athletes.

<http://scim.ag/Paralympians>

### Spotlight on Diversity

M. Price

Filmmaker and physicist Aziza Baccouche, who is blind, showcases the challenges and successes of diverse scientists in a new documentary series.

<http://scim.ag/DiversityDocumentary>

## SCIENCE PODCAST

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

On the 31 August *Science* Podcast: a reservoir of antibiotic resistance, forests that control the rain, the latest in Denisovan DNA, and more.

## SCIENCE INSIDER

[news.sciencemag.org/scienceinsider](http://news.sciencemag.org/scienceinsider)

Science Policy News and Analysis

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