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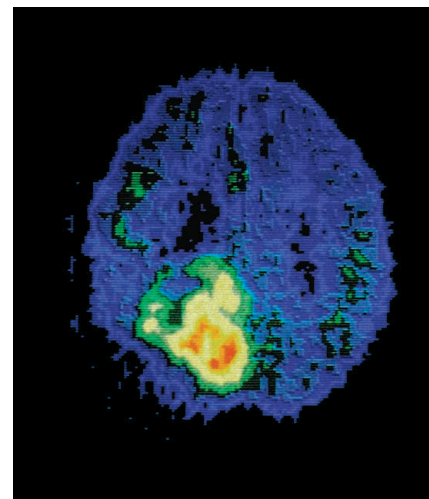
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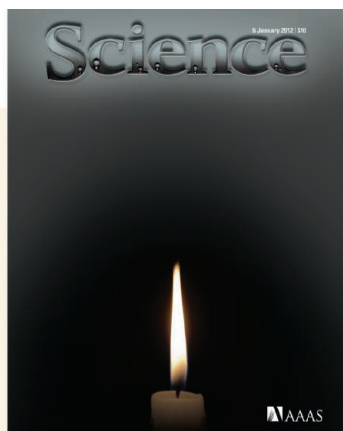


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## COVER

The porous deposit of candle soot can be used as a template for a super oil- and water-repellent coating. The soot is coated with a thin silica shell to form a replica and is then removed by calcination. The silica is treated with a fluorosilane, yielding a transparent, stable coating. This cheap and easily upscalable approach may inspire the design of anti-fingerprint coatings, which are desirable for touchscreens or glasses. See page 67.

*Photo illustration: Bricelyn Strauch and Yana Hammond/Science; candle image: Fotosearch*

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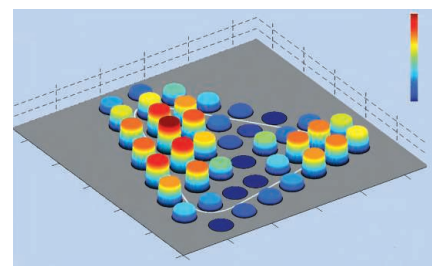
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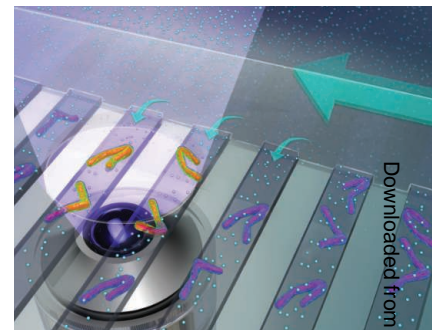
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## SCIENCEEXPRESS

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

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D. Deng et al.  
10.1126/science.1215670

**The Crystal Structure of TAL Effector PthXo1 Bound to Its DNA Target**

A. Nga-Sze Mak et al.  
Structures show how a virulence factor in a plant pathogen recognizes and binds to host DNA.  
10.1126/science.1216211

**Activation-Induced B Cell Fates Are Selected by Intracellular Stochastic Competition**

K. R. Duffy et al.  
Cell-fate decisions in activated B lymphocytes are determined by stochastic competition.  
10.1126/science.1213230

**Centrosome Loss in the Evolution of Planarians**

J. Azimzadeh et al.  
Analysis of centriole assembly in planaria gives insight into the evolution and function of the centrosome in animal cells.  
10.1126/science.1214457

**RNA Editing Underlies Temperature Adaptation in K<sup>+</sup> Channels from Polar Octopuses**

S. Garrett and J. J. C. Rosenthal  
Octopus potassium channels function efficiently at different temperatures due to RNA editing and not genetic differences.  
10.1126/science.1212795

## TECHNICALCOMMENTS

**Comment on "Nonreciprocal Light Propagation in a Silicon Photonic Circuit"**

S. Fan et al.  
Full text at [www.sciencemag.org/cgi/content/full/335/6064/38-b](http://www.sciencemag.org/cgi/content/full/335/6064/38-b)

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## SCIENCENOW

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

Highlights From Our Daily News Coverage

**A Surprising Threshold for Seabird Survival**  
Across species, seabird numbers plummet when stocks of prey fish fall below one-third of their maximum size.

<http://scim.ag/SeabirdSurvival>

**No Joke: Pigeons Ace a Simple Math Test**  
Observation shows that numerical reasoning is not limited to primates.

[http://scim.ag/Pigeons\\_Math](http://scim.ag/Pigeons_Math)

**Elephants Have a Sixth 'Toe'**  
CT scans help finger a mystery bone in the fat pads of pachyderm feet.

<http://scim.ag/Sixth-Toe>

## SCIENCE SIGNALING

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

The Signal Transduction Knowledge Environment  
**3 January issue: <http://scim.ag/ss01032012>**

**EDITORIAL GUIDE: 2011—Signaling Breakthroughs of the Year**

E. M. Adler  
This year's breakthroughs include structural insights, imaging advances, and new ways to control gene expression.

**RESEARCH ARTICLE: Inhibition of PP1 Phosphatase Activity by HBx—A Mechanism for the Activation of Hepatitis B Virus Transcription**

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A virus prolongs the activity of a host transcription factor to promote expression of viral genes.

**RESEARCH ARTICLE: Incoherent Feedforward Control Governs Adaptation of Activated Ras in a Eukaryotic Chemotaxis Pathway**

K. Takeda et al.  
Rapid adaptation to changes in chemoattractant concentration involves an incoherent feedforward structure of the underlying signaling network.

**LETTERS: Comment and Response on "Load-Induced Modulation of Signal Transduction Networks"—Reconciling Ultrasensitivity with Bifunctionality?**

R. Straube (Comment) and P. Jiang et al. (Response)  
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## SCIENCE TRANSLATIONAL MEDICINE

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

Integrating Medicine and Science  
**4 January issue: <http://scim.ag/stm010412>**

**REVIEW: NEW—Network-Enabled Wisdom in Biology, Medicine, and Health Care**

E. E. Schadt and J. L. M. Björkegren  
Multidimensional networks are required to model human physiology in general and to identify key drivers of pathology in individual patients.

**RESEARCH ARTICLE: Vaccine Vectors Derived from a Large Collection of Simian Adenoviruses Induce Potent Cellular Immunity Across Multiple Species**

S. Colloca et al.  
Simian adenoviruses screened from wild-derived candidates can prime T cell responses in man and may serve as new vaccine vector candidates.

**RESEARCH ARTICLE: Novel Adenovirus-Based Vaccines Induce Broad and Sustained T Cell Responses to HCV in Man**

E. Barnes et al.  
An adenoviral HCV vaccine induces antiviral T cell responses in human volunteers.

**FOCUS: Chimp Virus Makes a Savvy Vaccine Vector**

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**RESEARCH ARTICLE: Paracrine Signaling Through MYCN Enhances Tumor-Vascular Interactions in Neuroblastoma**

Y. H. Chanthery et al.  
PI3K/mTOR inhibitors inhibit angiogenesis by blocking MYCN-dependent paracrine signaling between tumor and endothelial cells.

## SCIENCE CAREERS

[www.sciencereers.org/career\\_magazine](http://www.sciencereers.org/career_magazine)  
Free Career Resources for Scientists

**Taken For Granted: Academia's Crooked Money Trail**

B. Benderly  
Paula Stephan's new book looks beyond rosy press releases to uncover the harsh economic realities of the academic job market.

[http://scim.ag/TFG\\_PaulaStephan](http://scim.ag/TFG_PaulaStephan)

**Getting Science to Those Who Need It**

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A former Silicon Valley entrepreneur found his calling helping biotech-derived therapies reach those who need them most.

<http://scim.ag/SocialBiotech>

**Firing Up Tomorrow's Science Stars**

S. A. Holgate  
Astrophysicist Aude Alapani-Odunlade's true passion is earthbound: helping teachers give their students a solid science education.

<http://scim.ag/FiringUpTomorrow>

## SCIENCEPODCAST

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On the 6 January *Science* Podcast: the parallel evolution of "supersoldier" ants, Ohm's law at the atomic scale, connecting obesity to cancer, and more.

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