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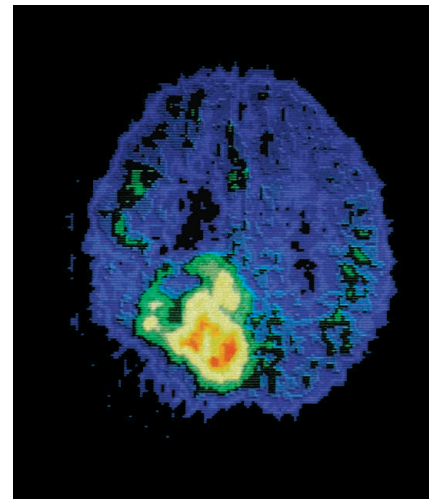
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COVER

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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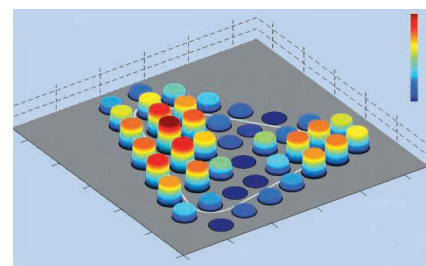
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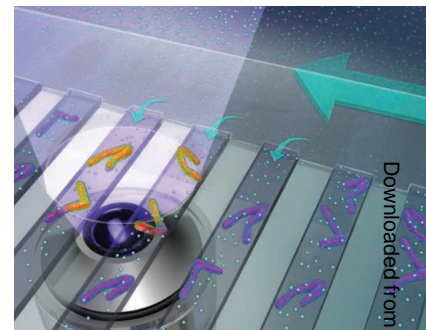
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Structural Basis for Sequence-Specific Recognition of DNA by TAL Effectors

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

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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

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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⁺ 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

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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

Response to Comment on "Nonreciprocal Light Propagation in a Silicon Photonic Circuit"

L. Feng et al.
Full text at www.sciencemag.org/cgi/content/full/335/6064/38-c

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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

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

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

EDITORIAL GUIDE: 2011—Signaling Breakthroughs of the Year

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

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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?

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SCIENCE TRANSLATIONAL MEDICINE

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

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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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A conversation with Alfredo Nicosia about the discovery of new adenoviruses that will help to make better vaccines to treat human diseases.

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

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Taken For Granted: Academia's Crooked Money Trail

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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

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.

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Firing Up Tomorrow's Science Stars

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

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