

## COVER

Clusters of the pathogenic bacterium *Staphylococcus aureus* visualized by scanning electron microscopy. *Staphylococcus aureus* has been called a “superbug” because of its ability to resist numerous antibiotics and evade host antimicrobial mediators, including nitric oxide. See page 1672.

*Image: Annie Cavanagh/Wellcome Images*

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- Malaria Eradication in India: A Failure? *T. D. Baker*

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- The Rise and Fall of the Ediacara Biota** *P. Vickers-Rich and P. Komarower, Eds., reviewed by S. Xiao*
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Downloaded from <http://www.sciencemag.org/> on February 17, 2019

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## SCIENCE EXPRESS

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

### GENETICS

**Mechanism of Self-Sterility in a Hermaphroditic Chordate**

*Y. Harada et al.*

The sea squirt prevents self-fertilization by using a tightly linked genetic locus to encode a sperm-egg receptor-ligand pair, a system similar to that used by flowering plants.

10.1126/science.1152488

### MATERIALS SCIENCE

**High-Thermoelectric Performance of Nanostructured Bismuth Antimony Telluride Bulk Alloys**

*B. Poudel et al.*

Milling a thermoelectric alloy, which produces electricity from a thermal gradient, into a nanopowder, then pressing it into a bulk form, greatly improves its performance.

10.1126/science.1156446

### PLANETARY SCIENCE

**Ancient Asteroids Enriched in Refractory Inclusions**

*J. M. Sunshine, H. C. Connolly Jr., T. J. McCoy, S. J. Bus, L. M. La Croix*

Spectral data imply that some asteroids contain higher concentrations of early solar system grains and materials than are found in any sampled meteorite.

10.1126/science.1154340

### EVOLUTION

**Metabolic Diversification—Independent Assembly of Operon-Like Gene Clusters in Plants**

*B. Field and A. E. Osbourn*

Through strong selection, similar clusters of genes for triterpene biosynthesis have arisen independently through gene duplication and neofunctionalization in several plant lines.

10.1126/science.1154990

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**Comment on “Physical Model for the Decay and Preservation of Marine Organic Carbon”** 1616

*B. P. Boudreau et al.*

[full text at www.sciencemag.org/cgi/content/full/319/5870/1616b](http://www.sciencemag.org/cgi/content/full/319/5870/1616b)

**Response to Comment on “Physical Model for the Decay and Preservation of Marine Organic Carbon”**

*D. H. Rothman and D. C. Forney*

[full text at www.sciencemag.org/cgi/content/full/319/5870/1616c](http://www.sciencemag.org/cgi/content/full/319/5870/1616c)

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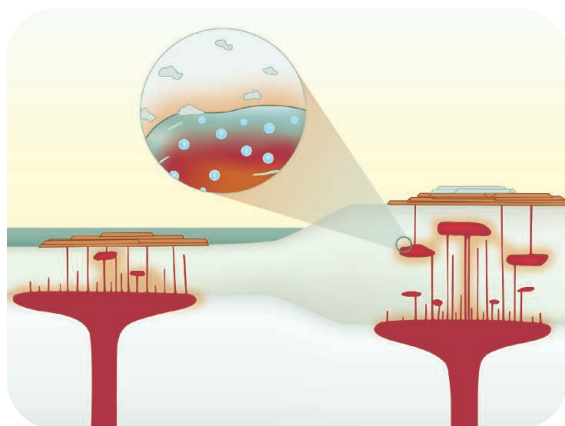
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*M. F. Hochella Jr. et al.*

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*H. Aarts, R. Custers, H. Marien*

Encouraging words flashed on a screen so briefly that they are only perceived unconsciously can, nevertheless, increase the effort put into a subsequent test of strength.

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*A. Bakker, C. B. Kirwan, M. Miller, C. E. L. Stark*

High-resolution imaging of the human brain reveals that, as seen in rodents, recognition of small differences in similar memories requires a particular region of the hippocampus. >> *Perspective p. 1623*

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*S. Ishiwata, Y. Taguchi, H. Murakawa, Y. Onose, Y. Tokura*

The polarization of electrons in a complex iron oxide magnet can be manipulated using only a weak magnetic field, not a strong one as required in other systems.

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*M. Legros, G. Dehm, E. Arzt, T. J. Balk*

Observations on the movements of silicon atoms in a thin film of aluminum show that dislocations can align and act like a channel or pipe to greatly accelerate diffusion.

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*R. D. Lorenz et al.*

An imbalance between the orbital and rotational periods of Saturn’s moon Titan implies that momentum is exchanged with its atmosphere and that it contains an internal ocean. >> *Perspective p. 1629*

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Spectral observations from Mars Odyssey detect chloride minerals, apparently forming from the evaporation of water, across some of the oldest regions on Mars.

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*S. Self, S. Blake, K. Sharma, M. Widdowson, S. Sephton*

Measurements on rare glass inclusions and rims in India's Deccan flood basalts imply that these end-Cretaceous eruptions injected huge amounts of sulfur into the atmosphere. >> *Perspective p. 1628*

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*S. Li, J. Matthews, A. Sinha*

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*M. L. Droser and J. G. Gehling*

Tubular fossils up to 30 centimeters long dominate the fossil assemblage in the Late Precambrian of the Flinders Range, Australia, and show multiple modes of growth.

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***Orrorin tugenensis* Femoral Morphology and the Evolution of Hominin Bipedalism** 1662

*B. G. Richmond and W. L. Jungers*

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*Z. Yuan et al.*

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*J. Sreedharan et al.*

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*A. R. Richardson, S. J. Libby, F. C. Fang*

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*G. Lenz et al.*

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*J. Tanaka et al.*

Pairing of stimuli in hippocampal cells induces secretion of the growth factor BDNF, causing enlargement of individual spines and strengthening of synapses. >> *Perspective p. 1627*

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**Spending Money on Others Promotes Happiness** 1687

*E. W. Dunn, L. B. Aknin, M. I. Norton*

A survey, a study of windfall spending, and a lab experiment all indicate that spending money on others results in more happiness than does spending money on oneself.



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Signaling researchers met in Weimar, Germany.

## SCIENCE SIGNALING

www.stke.org THE SIGNAL TRANSDUCTION KNOWLEDGE ENVIRONMENT

EDITORIAL GUIDE: Hear It, Watch It, Read It

*N. R. Gough*

Four new sections of *Science Signaling* bring new resources to the cell signaling community.

MEETING REPORT: Watching Molecules Talking to Each Other

*K. Friedrich, O. Janssen, R. Hass*

The 2007 meeting of the Signal Transduction Society focused on results obtained using state-of-the-art imaging methodologies.

PRESENTATION: Matrix Metalloproteinase-7 and the 20S Proteasome Contribute to Cellular Senescence

*C. Bertram and R. Hass*

Two cultured cell systems provide insight into intracellular and extracellular events involved in cellular differentiation and senescence.

PRESENTATION: In Vivo Imaging of T Cell Priming

*S. E. Henrickson et al.*

History of prior antigenic experience controls T cell activation.

PRESENTATION: Geranylgeranylation but Not GTP-Loading of Rho GTPases Determines T Cell Function

*S. Waiczies, I. Bendix, F. Zipp*

Posttranslational lipid modification of RhoA is necessary for T cell migration into the central nervous system during neuroinflammation.

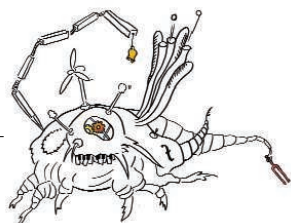
## SCIENCE ONLINE FEATURE

THE GONZO SCIENTIST:

Play It Again, Robot

The fifth installment in this series, with accompanying video, investigates the state of the art of robot music.

[www.sciencemag.org/sciext/gonzoscientist/](http://www.sciencemag.org/sciext/gonzoscientist/)



## SCIENCE NOW

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Fifth appendage keeps geckos upright and agile and even helps them glide.

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A special muscle may give alligators a deadly edge in the water.



Opportunities for scientists in public health.

## SCIENCE CAREERS

www.sciencereers.org CAREER RESOURCES FOR SCIENTISTS

Public Health Goes Global

*S. Webb*

Scientists are needed with experience and expertise to address global health challenges.

Tooling Up: Breaking Free of Academia

*D. Jensen*

The cultural shift from academia to nonacademic workplaces requires careful self-assessment.

Ahead of Her Time

*E. Pain*

At age 24, Katerina Aifantis received a grant from the European Research Council to start an independent lab.

From the Archives: Thanks for the Great Postdoc Bargain

*R. Freeman*

The Harvard economist thanks postdocs for their skilled and diligent servitude.

## SCIENCE PODCAST

Download the 14 March *Science* Podcast to hear about the evolution of human bipedalism, subliminal influence on behavior, and for farewell thoughts from senior news correspondent Jean Marx.

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