COVERAGE

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*

NEWS OF THE WEEK

Proposal to 'Wikify' GenBank Meets Stiff Resistance 1598

>> Letter by M. I. Bidartondo et al., p. 1616

Millennium Ancestor Gets Its Walking Papers 1599

>> Report p. 1662

Pfizer Denied Access to Journals’ Files 1601

SCIENCESCOPE

EPA Adjusts a Smog Standard to White House Preference 1601

Wisconsin Stem Cell Patents Upheld 1602

Showdown Looms Over a Biological Treasure Trove 1604

Expert Panel Lays Out the Path to Algebra—and Why It Matters 1605

NEWS FOCUS

Rinderpest: Driven to Extinction 1606

Protein Structure Initiative: Phase 3 or Phase Out Researchers Hone Their Homology Tools 1610

LETTERS

Open Letter to Senator Rita Levi-Montalcini R. Clementi, L. Bargigli, S. Sabbioni 1615

Response R. Levi-Montalcini

Preserving Accuracy in GenBank M. I. Bidartondo et al. 1598

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

BOOKS ET AL.


Sex Differences in the Brain From Genes to Behavior J. B. Becker et al., Eds., reviewed by E. Balaban 1619

EDUCATION FORUM


PERSPECTIVES

Detailed Differences S. Leutgeb 1623

>> Research Article p. 1640

Rethinking Ozone Production P. O. Wennberg and D. Dabdub 1624

>> Report p. 1657

Who Wins the Nonvolatile Memory Race? G. I. Meijer 1625

A Protoplasmic Kiss to Remember M. Korte 1627

>> Report p. 1683

Are Volcanic Gases Serial Killers? B. Scaillet 1628

>> Report p. 1654

Titan’s Hidden Ocean C. Sotin and G. Tobie 1629

>> Report p. 1649

EDITORIAL

Considering Science Education by Bruce Alberts 1589
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
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

TECHNICAL COMMENT ABSTRACTS
OCEAN SCIENCE
Comment on "Physical Model for the Decay and Preservation of Marine Organic Carbon"
B. P. Boudreau et al.
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/319/5870/1616b
full text at www.sciencemag.org/cgi/content/full/319/5870/1616c

REVIEWS
GEOCHEMISTRY
Nanominerals, Mineral Nanoparticles, and Earth Systems
M. F. Hochella Jr. et al.
GEOCHEMISTRY
Size-Driven Structural and Thermodynamic Complexity in Iron Oxides
A. Navrotsky, L. Mazeina, J. Majzlan

BREVIA
PSYCHOLOGY
Preparing and Motivating Behavior Outside of Awareness
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.

NEUROSCIENCE
Pattern Separation in the Human Hippocampal CA3 and Dentate Gyrus
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

APPLIED PHYSICS
Low-Magnetic-Field Control of Electric Polarization Vector in a Helimaget
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.

MATERIALS SCIENCE
Observation of Giant Diffusivity Along Dislocation Cores
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.

PLANETARY SCIENCE
Titan’s Rotation Reveals an Internal Ocean and Changing Zonal Winds
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
REPORTS CONTINUED...

PLANETARY SCIENCE
Chloride-Bearing Materials in the Southern Highlands of Mars
M. M. Osterloo et al.
Spectral observations from Mars Odyssey detect chloride minerals, apparently forming from the evaporation of water, across some of the oldest regions on Mars.

GEOCHEMISTRY
Sulfur and Chlorine in Late Cretaceous Deccan Magmas and Eruptive Gas Release
S. Self, S. Blake, K. Sharma, M. Widdowson, S. Septon
Measurements on rare glass inclusions and rims in India’s Deccan flood basals imply that these end-Cretaceous eruptions injected huge amounts of sulfur into the atmosphere. >> Perspective p. 1628

ATMOSPHERIC SCIENCE
Atmospheric Hydroxyl Radical Production from Electronically Excited NO₂ and H₂O
S. Li, J. Matthews, A. Sinha
The reaction of electronically excited nitrogen dioxide with water releases large amounts of OH radicals, an important oxidant, to the troposphere. >> Perspective p. 1624

PALEONTOLOGY
Synchronous Aggregate Growth in an Abundant New Ediacaran Tubular Organism
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.

ANTHROPOLOGY
Orrorin tugenensis Femoral Morphology and the Evolution of Hominin Bipedalism
B. G. Richmond and W. L. Jungers
Comparison of femora from an early, ostensibly human fossil to those from apes, humans, and hominins confirms that Orrorin tugenensis was a basal bipedal hominin. >> News story p. 1599

CELL BIOLOGY
Activation of FOXO1 by Cdk1 in Cycling Cells and Postmitotic Neurons
Z. Yuan et al.
A cell cycle–associated kinase phosphorylates the transcription factor FOXO1, which activates transcription of a regulator of mitosis.

MEDICINE
TDP-43 Mutations in Familial and Sporadic Amyotrophic Lateral Sclerosis
J. Sreedharan et al.
Mutations in a gene that encodes a protein that aggregates in several neurodegenerative disorders are linked to amyotrophic lateral sclerosis (Lou Gehrig’s disease).

MICROBIOLOGY
A Nitric Oxide–Inducible Lactate Dehydrogenase Enables Staphylococcus aureus to Resist Innate Immunity
A. R. Richardson, S. J. Libby, F. C. Fang
Staphylococcus aureus is a particularly successful pathogen because it responds to antimicrobial defenses of its host by producing more lactate to maintain its redox balance.

NEUROSCIENCE
Drosophila Egg-Laying Site Selection as a System to Study Simple Decision-Making Processes
C. Yang, P. Belawat, E. Hafen, L. Y. Jan, Y.-N. Jan
Experiments show how flies make complex decisions when laying eggs, choosing surfaces containing sucrose only when other options are not available.

NEUROSCIENCE
Protein Synthesis and Neurotrophin-Dependent Structural Plasticity of Single Dendritic Spines
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

PSYCHOLOGY
Spending Money on Others Promotes Happiness
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.

Published by AAAS
www.sciencemag.org
SCIENCE VOL 319 21 MARCH 2008
Four new sections of Science Signaling bring new resources to the cell signaling community.

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

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

History of prior antigenic experience controls T cell activation.

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

Separate individual or institutional subscriptions to these products may be required for full-text access.
Editor's Summary

This copy is for your personal, non-commercial use only.

**Article Tools**  Visit the online version of this article to access the personalization and article tools:
http://science.sciencemag.org/content/319/5870

**Permissions**  Obtain information about reproducing this article:
http://www.sciencemag.org/about/permissions.dtl