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

News of the Week

Proposal to ‘Wikify’ GenBank Meets Stiff Resistance

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

Millennium Ancestor Gets Its Walking Papers

>> Report p. 1662

Pfizer Denied Access to Journals’ Files

ScienceScope

EPA Adjusts a Smog Standard to White House Preference

Wisconsin Stem Cell Patents Upheld

Showdown Looms Over a Biological Treasure Trove

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

News Focus

Rinderpest: Driven to Extinction

Protein Structure Initiative: Phase 3 or Phase Out

Researchers Hone Their Homology Tools

Letters

Open Letter to Senator Rita Levi-Montalcini

R. Clementi, L. Bargigli, S. Sabbioni

Response R. Levi-Montalcini

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

>> News story p. 1598

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

Books et al.

The Rise of Animals Evolution and Diversification of the Kingdom Animalia M. A. Fedonkin et al.

The Rise and Fall of the Ediacara Biota P. Vickers-Rich and P. Komarower, Eds., reviewed by S. Xiao

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

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Perspectives

Detailed Differences S. Leutgeb

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

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

A Protoplasmic Kiss to Remember M. Korte

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Are Volcanic Gases Serial Killers? B. Scaillet

>> Report p. 1654

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

>> Report p. 1649

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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

PLANT PHYSIOLOGY
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.
full text at 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

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.

RESEARCH ARTICLE
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

REPORTS
APPLIED PHYSICS
Low-Magnetic-Field Control of Electric Polarization Vector in a Helimagnet
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
Mutations in a gene that encodes a protein that aggregates in several neurodegenerative disorders are linked to amyotrophic lateral sclerosis (Lou Gehrig’s disease).

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).

Spending Money on Others Promotes Happiness
E. W. Dunn, L. B. Akinin, 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.

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.

One type of non-Hodgkin’s lymphoma is caused by mutations in a scaffolding protein that inappropriately activate an inflammatory signaling pathway.

**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.
Opportunities for scientists in public health.

SCIENCE CAREERS
www.sciencemag.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.