



## COVER

A hot spring in Bali, Indonesia. The discovery of thriving microbial communities in such unexpected places has motivated investigation into the diversity and distribution of microbial life. The special issue beginning on page 1027 explores the microbial world.

*Image: Sylvain Grandadam/Getty Images*

## DEPARTMENTS

- 979 Science Online
- 981 This Week in *Science*
- 987 Editors' Choice
- 990 Contact *Science*
- 993 Random Samples
- 995 Newsmakers
- 1096 New Products
- 1097 Science Careers

## EDITORIAL

- 985 Microbes in the Energy Grid  
by James Tiedje and Timothy Donohue  
>> *Microbial Ecology* section p. 1027

## SPECIAL SECTION

# Microbial Ecology

## INTRODUCTION

- Lost in Microbial Space 1027

## NEWS

- The Inner Lives of Sponges 1028
- Confusing Kinships 1031

## REVIEWS

- The Microbial Engines That Drive Earth's Biogeochemical Cycles 1034  
*P. G. Falkowski, T. Fenchel, E. F. Delong*
- Microbial Biogeography: From Taxonomy to Traits 1039  
*J. L. Green, B. J. M. Bohannan, R. J. Whitaker*
- Microbial Ecology of Ocean Biogeochemistry: A Community Perspective 1043  
*S. L. Strom*

>> Editorial p. 985; News stories pp. 1001 and 1006; Science Express Report by R. E. Ley et al.; Brevia p. 1046; Research Article p. 1047; Report p. 1081; for online content see p. 979 or go to [www.sciencemag.org/microbialecolony/](http://www.sciencemag.org/microbialecolony/)



## NEWS OF THE WEEK

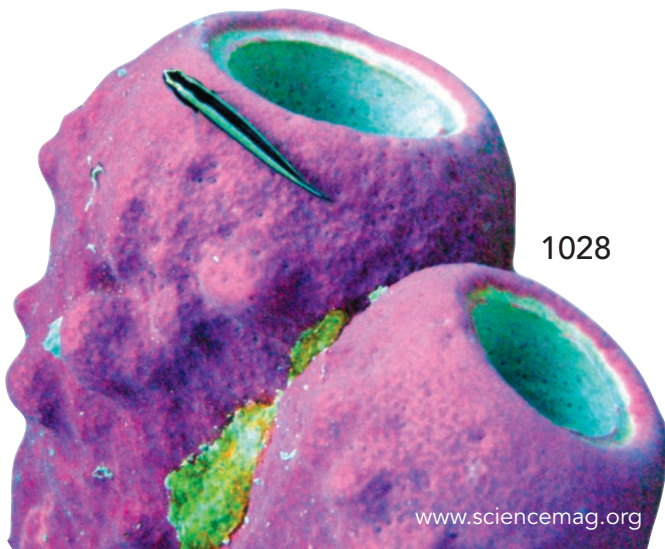
- Landslides, Flooding Pose Threats As Experts Survey Quake's Impact 996
- Farm Bill Gives Agriculture Research a Higher Profile in the Department 998
- Australia's New Science Budget Gets a Mixed Review 998
- Hurricanes Won't Go Wild, According to Climate Models 999

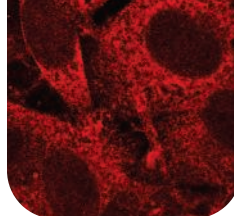
## SCIENCESCOPE

- Polar Bear Listing Opens Door to New Lawsuits: The Threat to the World's Plants 1000
- Bacteria Are Picky About Their Homes on Human Skin 1001

## NEWS FOCUS

- A New Great Lake—or Dead Sea? The End of an Intellectual Dark Age? 1002
- All That Makes Fungus Gardens Grow 1006
- GLAST Mission Prepares to Explore the Extremes of Cosmic Violence 1008





## SCIENCE EXPRESS

www.scienceexpress.org

## CELL SIGNALING

The Rag GTPases Bind Raptor and Mediate Amino Acid Signaling to mTORC1

Y. Sancak et al.

Nutrients, specifically amino acids, are sensed by small guanosine triphosphatases, which bind to a signaling complex, moving it close to the nucleus where it initiates cell growth.

10.1126/science.1157535

## MICROBIOLOGY

Evolution of Mammals and Their Gut Microbes

R. E. Ley et al.

Genomic sampling of the microbes in the feces of 60 mammals shows that herbivores harbor the most diversity and that individuals of the same species have the same flora.

>> *Microbial Ecology* section p. 1027

10.1126/science.1155725

## CELL BIOLOGY

$\beta$ -Arrestin-Mediated Localization of Smoothed to the Primary Cilium

J. J. Kovacs et al.

$\beta$ -arrestin, which has several known roles in signaling systems, also links a key receptor to a motor protein so that the receptor can be transported to cilia for sensing environmental cues.

10.1126/science.1157983

## CLIMATE CHANGE

Evidence for Upwelling of Corrosive "Acidified" Water onto the Continental Shelf

R. A. Feely et al.

As a result of anthropogenic CO<sub>2</sub> uptake, corrosive seawater undersaturated with calcium carbonate shoaled on the continental shelf of western North America in 2007.

10.1126/science.1155676

## LETTERS

Free Access to Landsat Imagery

1011

*The Landsat Science Team*

Why Rowe-Clark Doesn't Teach By the Book

R. Kramer and V. Galarza

Science Education: Should Facts Come First? S. Guo

Response S. Freeman, J. Lawhorn, A. Zheng

A Victory for PETA C. R. Spiess

## TECHNICAL COMMENT ABSTRACTS

## PHYSIOLOGY

Comment on "Brain IRS2 Signaling Coordinates Life Span and Nutrient Homeostasis"

1012

C. Selman, S. Lingard, D. Gems, L. Partridge, D. J. Withers

full text at [www.sciencemag.org/cgi/content/full/320/5879/1012b](http://www.sciencemag.org/cgi/content/full/320/5879/1012b)

Response to Comment on "Brain IRS2 Signaling Coordinates Life Span and Nutrient Homeostasis"

A. Taguchi and M. F. White

full text at [www.sciencemag.org/cgi/content/full/320/5879/1012c](http://www.sciencemag.org/cgi/content/full/320/5879/1012c)



1063

## BOOKS ET AL.

Systems Biology Philosophical Foundations

1013

F. C. Boogerd et al., Eds.; **An Introduction to Systems**

**Biology** Design Principles of Biological Circuits

U. Alon, reviewed by C. J. Cain et al.

## BROWSEINGS

1013

Phylogeny and Evolution of the Mollusca

1014

W. F. Ponder and D. R. Lindberg, Eds.,

reviewed by M. Glaubrecht

## POLICY FORUM

Public-Private Partnerships and

1016

Scientific Imperialism

T. J. Tucker and M. W. Makgoba

## PERSPECTIVES

Wi-Fi-Fo-Fum

1018

R. Morrow

SNO Removal

1019

A. Holmgren >> *Research Article* p. 1050

Marine Calcifiers in a High-CO<sub>2</sub> Ocean

1020

V. J. Fabry

Stronger, Tougher Steels

1022

J. W. Morris Jr. >> *Report* p. 1057

Slicing and Dicing for Small RNAs

1023

J. A. Birchler and H. H. Kavi >> *Report* p. 1077

Retrospective: Edward N. Lorenz (1917–2008)

1025

K. Emanuel

## BREVIA

## MICROBIOLOGY

Extending the Sub-Sea-Floor Biosphere

1046

E. G. Roussel et al.

Prokaryotic cells and DNA from Archaea are present at depths greater than 1 kilometer in sediments below the ocean floor, where temperatures range up to 100° Celsius.

CONTENTS continued >>

## RESEARCH ARTICLES

### MICROBIOLOGY

**Virus Population Dynamics and Acquired Virus Resistance in Natural Microbial Communities** 1047  
*A. F. Andersson and J. F. Banfield*

Fragments of viral genes found within Archaea and Bacteria genomes are part of an antiviral defense system and can be used to identify and track the viruses themselves.

### BIOCHEMISTRY

**Regulated Protein Denitrosylation by Cytosolic and Mitochondrial Thioredoxins** 1050

*M. Benhar, M. T. Forrester, D. T. Hess, J. S. Stamler*

Thioredoxins—known to be antioxidants—also remove nitrosyl groups from a protease to activate it and may also function in this way in other cellular regulatory systems. >> *Perspective p. 1019*

## REPORTS

### MATERIALS SCIENCE

**Structural Diversity of Sodium** 1054  
*E. Gregoryanz et al.*

Single-crystal diffraction data reveal that many crystalline phases of sodium, some quite complex, occur near its unusual minimum melting temperature at very high pressure.

### MATERIALS SCIENCE

**Inverse Temperature Dependence of Toughness in an Ultrafine Grain-Structure Steel** 1057  
*Y. Kimura, T. Inoue, F. Yin, K. Tsuzaki*

A network of fine, fibrous grains formed at high temperatures substantially improves the strength and ductility of a low-alloy steel at low temperatures, where it is typically brittle. >> *Perspective p. 1022*

### MATERIALS SCIENCE

**Dislocation-Driven Nanowire Growth and Eshelby Twist** 1060

*M. J. Bierman, Y. K. A. Lau, A. V. Kvit, A. L. Schmitt, S. Jin*

A screw dislocation drives the growth of a nanowire pine tree, in which branches regularly extend from the trunk in a spiral, confirming Eshelby's theory of dislocations.

### PLANETARY SCIENCE

**Detection of Silica-Rich Deposits on Mars** 1063  
*S. W. Squyres et al.*

The rover Spirit has found opaline silica-rich soil and rocks on Mars, providing further evidence for extensive local mineralization by hydrothermal fluids at low pH.

### GEOLOGY

**Formation of Box Canyon, Idaho, by Megaflood: Implications for Seepage Erosion on Earth and Mars** 1067  
*M. P. Lamb et al.*

A classic amphitheater-shaped canyon in Idaho, similar to features seen on Mars, formed in a glacial megaflood, not through groundwater seepage at its head as was thought.

### GEOPHYSICS

**Anticorrelated Seismic Velocity Anomalies from Post-Perovskite in the Lowermost Mantle** 1070

*A. R. Hutko, T. Lay, J. Revenaugh, E. J. Garnero*

Analysis of 10,000 seismic waves passing through the deep mantle shows that a velocity jump 300 kilometers above the core is caused by a phase change in a major mantle mineral.

### PHYSIOLOGY

**Differential Rescue of Light- and Food-Entrainable Circadian Rhythms** 1074

*P. M. Fuller, J. Lu, C. B. Saper*

When hungry, rodents may optimize their chances of finding food by engaging a food-entrained circadian clock in the brain that takes over from the light-driven clock.

### MOLECULAR BIOLOGY

**Endogenous siRNAs Derived from Transposons and mRNAs in *Drosophila* Somatic Cells** 1077

*M. Ghildiyal et al.*

Endogenous small interfering RNAs transcribed from both transposons and messenger RNAs are found in somatic cells of flies and may act to silence "selfish" genetic elements.

>> *Perspective p. 1023*

### EVOLUTION

**Resource Partitioning and Sympatric Differentiation Among Closely Related Bacterioplankton** 1081

*D. E. Hunt et al.*

A model of a marine plankton population reveals that ecologically distinct subgroups undergo sympatric speciation fast enough to overcome horizontal gene flow.

### MEDICINE

**A Polymorphism Within the *G6PC2* Gene Is Associated with Fasting Plasma Glucose Levels** 1085

*N. Bouatia-Naji et al.*

Variation in a gene for a protein in the pancreas may help explain why people have different levels of fasting blood glucose, a factor that affects disease risk.

### CELL BIOLOGY

**The Serine Protease TMPRSS6 Is Required to Sense Iron Deficiency** 1088

*X. Du et al.*

A cell-surface enzyme that cleaves proteins is unexpectedly necessary for sensing when iron levels are low and thereby triggering compensatory absorption of iron from food.

### PSYCHOLOGY

**The Right and the Good: Distributive Justice and Neural Encoding of Equity and Efficiency** 1092

*M. Hsu, C. Anen, S. R. Quartz*

A brain region linked to emotion-processing systems is activated as humans weigh fairness to an individual against benefit for a group.



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CONTENTS continued >>>



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HIGHLIGHTS FROM OUR DAILY NEWS COVERAGE

### Monkey Model of Huntington's Disease

Genetically modified primates may be better than mice for studying neurological disorders.

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*S. Gaidos*

Fitting in on a college faculty is harder when you are the first in your family to go to college.

### Tooling Up: Transitioning to Teamwork

*D. Jensen*

How do you convince a recruiter that you can play well with others?

### Mastering Your Ph.D.: Careers in Management Consulting

*B. Noordam and P. Gosling*

Problem-solving and communication are important skills if you want to advise industry executives.

### From the Archives: How to Get a Job in Academia

*A. Fazekas*

Search committees at different institutions look for different strengths in their faculty applicants.



An unhappy microbe-host interaction.

## SPECIAL SECTION

# Microbial Ecology

## SCIENCE SIGNALING

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

THE SIGNAL TRANSDUCTION KNOWLEDGE ENVIRONMENT

### EDITORIAL GUIDE: Focus Issue—A Niche of One's Own

*E. M. Adler and J. F. Foley*

The nature of microbe-host relationships often depends on signaling pathways in the host.

### PERSPECTIVE: Diversification of the Function of Cell-to-Cell Signaling in Regulation of Virulence Within Plant Pathogenic Xanthomonads

*M. Dow*

Different plant pathogens use similar signaling molecules in distinct ways.

### PERSPECTIVE: Bacterial-Modulated Signaling Pathways in Gut Homeostasis

*W.-J. Lee*

Stimulation of the production of reactive oxygen species in gut epithelial cells by commensal bacteria dampens the host immune response.

### PERSPECTIVE: ETosis—A Novel Cell Death Pathway

*F. Wartha and B. Henriques-Normark*

Pathogenic microbes are trapped and killed by mast cell- and neutrophil-derived extracellular traps.

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