

EDITORIAL

- 635 The Endangered Bond
Gottfried Schatz

NEWS OF THE WEEK

- 640 A roundup of the week's top stories

NEWS & ANALYSIS

- 644 €22 Billion Stimulus Brings Worries About *Egalité*
645 New Cystic Fibrosis Drug Offers Hope, at a Price
646 More Than One Way for Invaders to Wreak Havoc
647 High Hopes for Croatia's 'Warm Spring Harbor' Remain Unfulfilled

NEWS FOCUS

- 648 Indoor Ecosystems
>> Science Podcast
651 Stephen Friend: The Visionary

LETTERS

- 655 Carbon Shifted But Not Sequestered
R. L. Curl
Response
C. Groves et al.
Ecosystem Services: Heed Social Goals
E. Corbera and U. Pascual
Ecosystem Services: Free Lunch No More
L. N. Joppa
Response
A. P. Kinzig et al.
656 NextGenVOICES
657 CORRECTIONS AND CLARIFICATIONS
657 TECHNICAL COMMENT ABSTRACTS

BOOKS ET AL.

- 658 Michael Polanyi and His Generation
M. J. Nye, reviewed by D. Kaiser
659 Ancestors and Relatives
E. Zerubavel, reviewed by M. Tienda

POLICY FORUMS

- 660 Adaptations of Avian Flu Virus Are a Cause for Concern
K. I. Berns et al.
662 Restricted Data on Influenza H5N1 Virus Transmission
R. A. M. Fouchier et al.
>> Science Express Policy Forum
by R. R. Faden and R. A. Karron

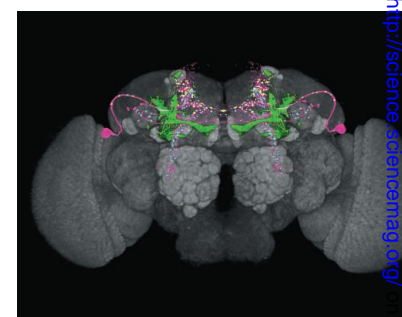
PERSPECTIVES

- 664 Ode to the Mushroom Bodies
J. Dubnau
>> Research Article p. 678
665 Critical Truths About Power Laws
M. P. H. Stumpf and M. A. Porter
667 Remembering to Be Tolerant
J.-Y. Lee and S. C. Jameson
>> Report p. 723
668 Probing Frozen Molecular Embraces
T. S. Zwier
>> Report p. 694
669 It's All in the Symmetry
J. Abramson et al.
>> Research Article p. 686

CONTENTS continued >>



page 651



pages 664 & 678



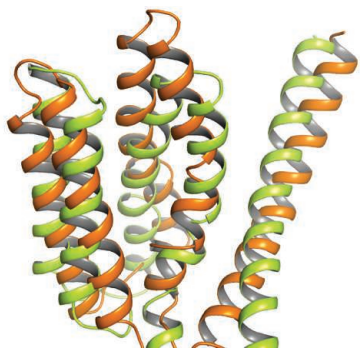
COVER

Colorized scanning electron micrograph of a blood clot, removed from the coronary artery of a patient with acute myocardial infarction, showing the fibrin meshwork (brown) with trapped red blood cells (average ~7 micrometers across) and a cholesterol crystal (yellow). Regulated clotting of blood is essential for preserving life in vertebrates. The Gordon Research Conference on Hemostasis will be held 22 to 27 July 2012 in Waterville Valley, New Hampshire. See page 728 for the conference schedule and preliminary programs.

Image: Chandrasekaran Nagaswami and John W. Weisel, University of Pennsylvania

DEPARTMENTS

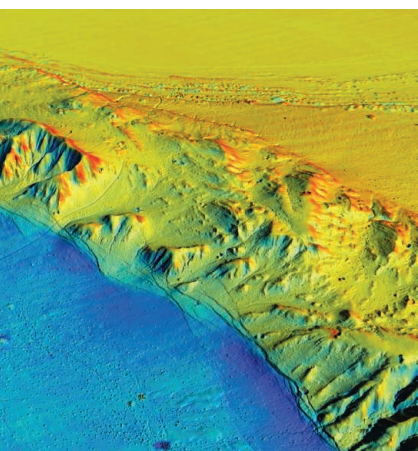
- 633 This Week in *Science*
636 Editors' Choice
638 *Science* Staff
728 Gordon Research Conferences
751 New Products
752 Information for Authors
754 *Science* Careers



pages 669 & 686



page 690



page 702

REVIEW

- 671 Seasonality in Ocean Microbial Communities
S. J. Giovannoni and K. L. Vergin

BREVIA

- 677 Pigment Pattern Formation by Contact-Dependent Depolarization
M. Inaba et al.
Cell culture experiments reveal that direct interactions between pigment cells play a key role in skin pattern formation.

RESEARCH ARTICLES

- 678 Visualizing Long-Term Memory Formation in Two Neurons of the *Drosophila* Brain
C.-C. Chen et al.
Protein synthesis underlying olfactory memory storage takes place outside the mushroom body—the site of memory storage.
>> *Perspective p. 664*
- 686 Structural Insight into the Ion-Exchange Mechanism of the Sodium/Calcium Exchanger
J. Liao et al.
The arrangement of four central ion-binding sites with differing specificities suggests how a membrane transporter protein works.
>> *Perspective p. 669*

REPORTS

- 690 One-Step Fabrication of Supramolecular Microcapsules from Microfluidic Droplets
J. Zhang et al.
A molecular host that binds two guests directs scalable fabrication of hollow polymer/gold nanoparticle hybrid structures.
- 694 Determination of Noncovalent Docking by Infrared Spectroscopy of Cold Gas-Phase Complexes
E. Garand et al.
Conformationally freezing a weakly bound complex in the gas phase sheds light on its likely binding motifs in solution.
>> *Perspective p. 668*
- 698 A Molecular MoS₂ Edge Site Mimic for Catalytic Hydrogen Generation
H. I. Karunadasa et al.
A small molecule functionally models the active component of an extended solid material with wide catalytic applications.

- 702 Near-Field Deformation from the El Mayor–Cucapah Earthquake Revealed by Differential LIDAR
M. E. Oskin et al.
Optical remote sensing before and after a large earthquake reveals its rupture dynamics.
>> *Science Podcast*
- 705 Propagation of Slow Slip Leading Up to the 2011 *M_w* 9.0 Tohoku–Oki Earthquake
A. Kato et al.
Two sequences of slow slip preceded and migrated toward the main rupture.
- 709 Structure-Based Mechanistic Insights into DNMT1-Mediated Maintenance DNA Methylation
J. Song et al.
The enzyme that maintains DNA methylation in eukaryotes flips out the target C base in hemimethylated DNA for methylation.
- 712 Structure and Allostery of the PKA RII β Tetrameric Holoenzyme
P. Zhang et al.
Details are revealed as to how cyclic adenosine monophosphate (cAMP) binding causes dissociation and activation of cAMP-dependent protein kinase.
- 716 The Crystal Structure of TAL Effector PthXo1 Bound to Its DNA Target
A. Nga-Sze Mak et al.
- 720 Structural Basis for Sequence-Specific Recognition of DNA by TAL Effectors
D. Deng et al.
Structures show how a virulence factor in a plant pathogen recognizes and binds to host DNA.
- 723 Rescued Tolerant CD8 T Cells Are Preprogrammed to Reestablish the Tolerant State
A. Schietinger et al.
Maintenance of T cell tolerance is likely regulated by epigenetic mechanisms.
>> *Perspective p. 667*

SCIENCEONLINE

SCIENCEEXPRESS

www.sciencexpress.org

ApoE-Directed Therapeutics Rapidly Clear β -Amyloid and Reverse Deficits in AD Mouse Models

P. E. Cramer et al.

Bexarotene counters the effects of neurodegenerative disease in mice.

10.1126/science.1217697

Triggering a Cell Shape Change by Exploiting Preexisting Actomyosin Contractions

M. Roh-Johnson et al.

Morphogenesis in developing worms and flies harnesses ongoing cortical motility.

10.1126/science.1217869

The Alarmin Interleukin-33 Drives Protective Antiviral CD8⁺ T Cell Responses

W. V. Bonilla et al.

A danger signal released from dying cells is required for antiviral immunity in mice.

10.1126/science.1215418

Plant UVR8 Photoreceptor Senses UV-B by Tryptophan-Mediated Disruption of Cross-Dimer Salt Bridges

J. M. Christie et al.

A tryptophan pyramid allows a dimeric protein to perceive ultraviolet light without an additional chromophore.

10.1126/science.1218091

>> *Science Podcast*

Intensifying Weathering and Land Use in Iron Age Central Africa

G. Bayon et al.

Savannas abruptly replaced rainforests around 3000 years ago on account of both climate and human land-use changes.

10.1126/science.1215400

The Obligation to Prevent the Next Dual-Use Controversy

R. R. Faden and R. A. Karron

10.1126/science.1219668

>> *Policy Forums pp. 660 and 662*

TECHNICALCOMMENTS

Comment on "Phonemic Diversity Supports a Serial Founder Effect Model of Language Expansion from Africa"

M. Cysouw et al.

Full text at www.sciencemag.org/cgi/content/full/335/6069/657-b

Comment on "Phonemic Diversity Supports a Serial Founder Effect Model of Language Expansion from Africa"

C.-C. Wang et al.

Full text at www.sciencemag.org/cgi/content/full/335/6069/657-c

Comment on "Phonemic Diversity Supports a Serial Founder Effect Model of Language Expansion from Africa"

R. Van Tuyl and A. Pereltsvaig

Full text at www.sciencemag.org/cgi/content/full/335/6069/657-d

Response to Comments on "Phonemic Diversity Supports a Serial Founder Effect Model of Language Expansion from Africa"

Q. D. Atkinson

Full text at www.sciencemag.org/cgi/content/full/335/6069/657-e

SCIENCENOW

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Highlights From Our Daily News Coverage

Did Easter Islanders Mix It Up With South Americans?

Genetic evidence suggests that Polynesians may have mingled with pre-Columbian Native Americans.

http://scim.ag/Easter_Islanders

Air Guns Shake Up Earthquake Monitoring

A new device may help researchers keep an eye on changing stresses along fault zones.

http://scim.ag/Earthquake_Monitoring

Primed for Addiction?

People with brains wired for drug abuse do not necessarily become addicts.

<http://scim.ag/Primed-Addiction>

SCIENCE TRANSLATIONAL MEDICINE

www.sciencetranslationalmedicine.org

Integrating Medicine and Science

8 February issue: <http://scim.ag/stm020812>

RESEARCH ARTICLE: AAV2 Gene Therapy Readministration in Three Adults with Congenital Blindness

J. Bennett et al.

Repeat administration of gene therapy to the contralateral retina of three congenitally blind patients was safe and resulted in improved vision.

RESEARCH ARTICLE: Simultaneous Targeting of Toll- and Nod-Like Receptors Induces Effective Tumor-Specific Immune Responses

J. Garaude et al.

FOCUS: Improving Immunotherapy—Revisiting the Immunologist's Little Secret

J. A. Berzofsky

A cancer vaccine of irradiated tumor cells expressing flagellin primes effective NLR4/NAIP5- and TLR5-dependent antitumor immune responses.

RESEARCH ARTICLE: Mechanisms of Acquired Crizotinib Resistance in ALK-Rearranged Lung Cancers

R. Katayama et al.

PERSPECTIVE: Escaping ALK Inhibition—Mechanisms of and Strategies to Overcome Resistance

C. M. Lovly and W. Pao

PODCAST

J. Engelman and O. Smith

Multiple mechanisms of crizotinib resistance were identified in lung cancer patients, including new secondary ALK mutations and activation of receptor tyrosine kinases.

SCIENCE SIGNALING

www.sciencesignaling.org

The Signal Transduction Knowledge Environment

7 February issue: <http://scim.ag/ss020712>

RESEARCH ARTICLE: Protein Kinase CK2 Triggers Cytosolic Zinc Signaling Pathways by Phosphorylation of Zinc Channel ZIP7

K. M. Taylor et al.

PODCAST

K. M. Taylor and A. M. VanHook

The kinase CK2 promotes the generation of intracellular zinc waves by stimulating the zinc channel ZIP7.

RESEARCH ARTICLE: PTEN Directly Activates the Actin Depolymerization Factor Cofilin-1 During PGE₂-Mediated Inhibition of Phagocytosis of Fungi

C. H. Serezani et al.

The protein phosphatase activity of PTEN impairs macrophage phagocytosis of a fungal pathogen.

PERSPECTIVE: An "Inordinate Fondness for Transporters" Explained?

D. J. Eide

The presence of low- and high-affinity transporters enables cells to adequately prepare for nutrient fluctuations.

FORUM: Highlights of Selected Talks Related to Posttranslational Modifications in Cell Signaling

N. R. Gough

These are summaries of presentations from the Cell Signaling Networks 2011 meeting.

SCIENCE CAREERS

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Free Career Resources for Scientists

Taken for Granted: How to Live With Danger

B. L. Benderly

As the Sangji case moves toward a legal judgment, will the academy learn its lessons?

http://scim.ag/TFG_Danger

Translational Research Finds a New Center

M. Price

A new NIH center aims to set the national agenda on translational research, but budget constraints mean not much change for now.

<http://scim.ag/TransCenter>

Perspective: Questing for Blue Oceans

J. Garcia-Martinez

A Spanish molecular nanotechnology researcher, TR35 Innovator of the Year, company founder, and policy adviser encourages early-career scientists to incite scientific revolutions.

<http://scim.ag/BlueOceans>

SCIENCE PODCAST

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Free Weekly Show

On the 10 February *Science* Podcast: ultraviolet light sensing in plants, investigating earthquakes with LIDAR, indoor microbe populations, and more.

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