

9 December 2011 | \$10

Science



EDITORIAL

- 1323 Science Meets Farming in Africa
Calestous Juma

NEWS OF THE WEEK

- 1328 A roundup of the week's top stories

NEWS & ANALYSIS

- 1331 Is €80 Billion on the Horizon for European Research?
Robert-Jan Smits: On Tearing Down Silos, Horizon 2020's Chances, and Solving His 'Headache'
>> *Science Podcast*
- 1333 Weed-Out Courses Hamper Diversity
- 1334 First Solid Signs of the Higgs Boson Could Be Announced Next Week
- 1335 Genes Confirm Europeans' Blow to Native Americans
- 1336 Critics Question China's Indigenous Innovation Effort
- 1337 Congress Asks NOAA to Consider Charging for Data

NEWS FOCUS

- 1338 Halting HIV/AIDS Epidemics
- 1341 Tohoku Inundation Spurs Hunt for Ancient Tsunamis
Did Tsunamis Influence Polynesian History?
- 1344 Saudi Universities Offer Cash in Exchange for Academic Prestige

LETTERS

- 1346 Rethinking Clinical Trials: Phase 1 Studies Insufficient
M. Carome and S. Wolfe
- Rethinking Clinical Trials: Change Is Coming
N. A. Marcus
- Rethinking Clinical Trials: Biology's Mysteries
D. W. Borhani and J. A. Butts

Primitive Ladder-of-Life Thinking Has Evolved
U. Kutschera

Response
J. L. Acuña et al.

1348 CORRECTIONS AND CLARIFICATIONS

BOOKS ET AL.

- 1349 The Sibling Effect
J. Kluger, reviewed by N. L. Segal
- 1350 Solar Decathlon 2011
R. King, Director

POLICY FORUM

- 1351 Entertainment Value: Should the Media Pay for Nature Conservation?
P. Jepson et al.

PERSPECTIVES

- 1353 The Cost of Fear
T. E. Martin
>> *Report p. 1398*
- 1354 Beleaguered Immunity
J. M. McDowell
>> *Reports pp. 1401 and 1405*
- 1355 Optimizing Perovskites for the Water-Splitting Reaction
A. Vojvodic and J. K. Nørskov
>> *Report p. 1383*
- 1356 Can Integration Tame Conflicts?
L. Goette and S. Meier
>> *Report p. 1392*
- 1358 Empathy and the Laws of Affect
J. Panksepp
>> *Report p. 1427*
- 1359 Complex Colloidal Assembly
W. J. Parak
>> *Report p. 1377*
- 1360 Using the Past to Predict the Future?
G. C. Hegerl and T. Russon
>> *Report p. 1385*

ASSOCIATION AFFAIRS

- 1362 Presidential Address: Passions
A. S. Huang

CONTENTS continued >>



page 1341



page 1350



COVER

Scanning electron micrograph of a female *Anopheles stephensi* mosquito, a transmitter of malaria (proboscis length: ~0.6 millimeters). To drive malaria eradication, new medicines that target all stages of the malaria life cycle are needed. In their study, Meister *et al.* used thousands of *A. stephensi* mosquitos to identify chemical classes with activity against the silent malaria liver stage. See page 1372.

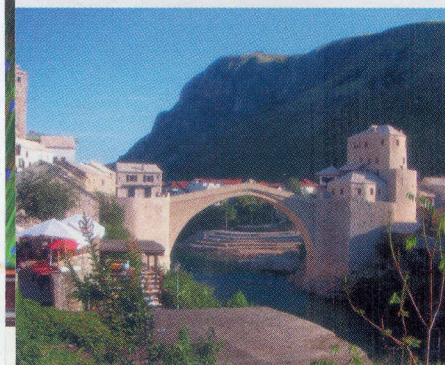
Image: David Scharf/Getty Images

DEPARTMENTS

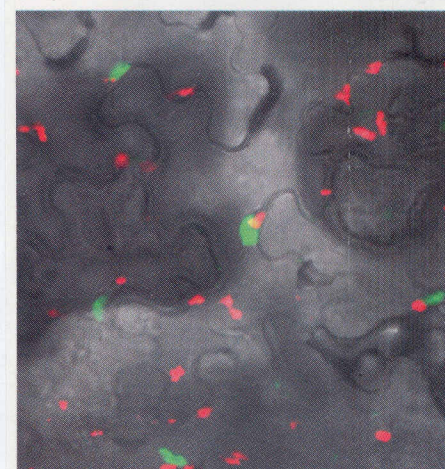
- 1321 This Week in *Science*
- 1324 Editors' Choice
- 1326 *Science* Staff
- 1432 New Products
- 1433 *Science* Careers



page 1367



pages 1356 & 1392



pages 1354, 1401, & 1405

RESEARCH ARTICLES

- 1367** Calibrating the End-Permian Mass Extinction
S. Shen et al.
High-precision geochronologic dating constrains probable causes of Earth's largest mass extinction.
- 1372** Imaging of *Plasmodium* Liver Stages to Drive Next-Generation Antimalarial Drug Discovery
S. Meister et al.
Imidazolopiperazine compounds inhibit liver-stage malaria parasites with one oral dose in mice.

REPORTS

- 1377** Carving at the Nanoscale: Sequential Galvanic Exchange and Kirkendall Growth at Room Temperature
E. González et al.
Processes used in colloidal chemistry can be jointly exploited to make complex metal alloy nanoparticles.
[>> Perspective p. 1359](#)
- 1380** The Origin of OB Runaway Stars
M. S. Fujii and S. Portegies Zwart
Most of the unusually fast, young stars in our galaxy are produced in three-body encounters within dense clusters of stars.
- 1383** A Perovskite Oxide Optimized for Oxygen Evolution Catalysis from Molecular Orbital Principles
J. Suntivich et al.
An electronic property of metal oxides was used to guide development of a catalyst for prospective use in energy applications.
[>> Perspective p. 1355](#)
- 1385** Climate Sensitivity Estimated from Temperature Reconstructions of the Last Glacial Maximum
A. Schmittner et al.
Last Glacial Maximum temperature reconstructions and model simulations can constrain the equilibrium climate sensitivity.
[>> Perspective p. 1360](#)
- 1388** Middle Stone Age Bedding Construction and Settlement Patterns at Sibudu, South Africa
L. Wadley et al.
Early humans constructed sleeping mats from local plants, including some with insecticidal properties.
- 1392** Context Modularity of Human Altruism
M. Alexander and F. Christia
Ethnic integration enhances cooperative behavior and sanctioning of free-riders.
[>> Perspective p. 1356](#)
- 1394** Capacity Building Helps Pastoral Women Transform Impoverished Communities in Ethiopia
D. L. Coppock et al.
Diversification of income-producing activities provides greater resilience to drought.

- 1398** Perceived Predation Risk Reduces the Number of Offspring Songbirds Produce per Year
L. Y. Zanette et al.
Fear itself reduces reproductive success in song sparrows.
[>> Perspective p. 1353](#)
- 1401** *Arabidopsis* EDS1 Connects Pathogen Effector Recognition to Cell Compartment-Specific Immune Responses
K. Heidrich et al.
- 1405** Pathogen Effectors Target *Arabidopsis* EDS1 and Alter Its Interactions with Immune Regulators
S. Bhattacharjee et al.
Coordination of different defense pathways across cell compartments produces a fully effective innate immune response.
[>> Perspective p. 1354](#)
- 1408** The Competitive Advantage of a Dual-Transporter System
S. Levy et al.
Low-affinity nutrient transporters sense depletion earlier than high-affinity transporters, thus preparing cells for starvation.
- 1413** Perceptual Learning Incepted by Decoded fMRI Neurofeedback Without Stimulus Presentation
K. Shibata et al.
Even the adult primary visual cortex is sufficiently plastic to allow performance enhancement.
- 1415** Entorhinal Cortex Layer III Input to the Hippocampus Is Crucial for Temporal Association Memory
J. Suh et al.
A specific neural circuit integrates temporally dispersed stimuli into a coherent memory episode.
- 1420** Interconversion Between Intestinal Stem Cell Populations in Distinct Niches
N. Takeda et al.
Two niches with distinct characteristics work in tandem.
- 1424** Explaining Seasonal Fluctuations of Measles in Niger Using Nighttime Lights Imagery
N. Bharti et al.
Changes in human population density as measured by satellite images of nighttime lights predict measles.
[>> Science Podcast](#)
- 1427** Empathy and Pro-Social Behavior in Rats
I. Ben-Ami Bartal et al.
Rats free companions from restraint, apparently motivated by empathy to end their mate's distress.
[>> Perspective p. 1358](#)

SCIENCEONLINE

SCIENCEEXPRESS

www.sciencexpress.org

Stop Signals Provide Cross Inhibition in Collective Decision-Making by Honeybee Swarms

T. D. Seeley et al.

Scout bees bring about nest-site decisions by targeting stop signals at bees with other candidate sites.

10.1126/science.1210361

>> [Science Podcast](#)

How Honeybees Break a Decision-Making Deadlock

J. E. Niven

10.1126/science.1216563

A SUMOylation-Dependent Transcriptional Subprogram Is Required for Myc-Driven Tumorigenesis

J. D. Kessler et al.

An RNA interference screen identifies a "druggable" enzyme whose inhibition halts tumor cell growth.

10.1126/science.1212728

Cytoplasmic Dynein Moves Through Uncoordinated Stepping of the AAA+ Ring Domains

M. A. DeWitt et al.

The molecular motor dynein moves each of its two heads independently along the microtubule.

10.1126/science.1215804

Sucrose Efflux Mediated by SWEET Proteins as a Key Step for Phloem Transport

L.-Q. Chen et al.

Transporters hand off sucrose from production cell to transport cell.

10.1126/science.1213351

Capturing Ultrasmall EMT Zeolite from Template-Free Systems

E.-P. Ng et al.

Control of the early stages of nucleation favors the synthesis of large-pore zeolite crystals ~10 nanometers in size.

10.1126/science.1214798

Synthetic Partial Waves in Ultracold Atomic Collisions

R. A. Williams et al.

A pair of lasers is used to produce complex interactions between bosons in an ultracold gas.

10.1126/science.1212652

SCIENCENOW

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[Highlights From Our Daily News Coverage](#)

Fuel From Waste?

Genetically engineered bacteria could turn trees, grasses, and agricultural waste into gasoline.

http://scim.ag/Fuel_Waste

Potentially Habitable Planet Is Christmas Present for Kepler Astronomers

Temperatures on a newly discovered world could hover around 21°C.

http://scim.ag/New_Planet

Tuna Stocks at Edge of Sustainability

Global analysis finds that five decades of intensive fishing have shrunk populations by 60%.

http://scim.ag/Tuna_Stocks

SCIENCE SIGNALING

www.sciencesignaling.org

The Signal Transduction Knowledge Environment

6 December issue: <http://scim.ag/ss120611>

EDITORIAL GUIDE: The Complex Art of Telling It Simply

M. B. Yaffe

Computational biology studies are complex; papers describing the results should not be.

RESEARCH ARTICLE: Neuronal Growth Cone Retraction Relies on Proneurotrophin Receptor Signaling Through RAC

K. Deinhardt et al.

Whereas nerve growth factor promotes neurite outgrowth, the precursor form triggers retraction.

RESEARCH ARTICLE: The SH2 Domain-Containing Proteins in 21 Species Establish the Provenance and Scope of Phosphotyrosine Signaling in Eukaryotes

B. A. Liu et al.

The evolution of modular protein domains corresponds with organismal complexity.

RESEARCH ARTICLE: Protein Kinase C η Is Required for T Cell Activation and Homeostatic Proliferation

G. Fu et al.

T cells make specific use of different protein kinase C isoforms.

RESEARCH ARTICLE: PDLIM2 Inhibits T Helper 17 Cell Development and Granulomatous Inflammation Through Degradation of STAT3

T. Tanaka et al.

An E3 ubiquitin ligase inhibits the development of inflammatory T cells involved in autoimmune diseases.

ST NETWORK: Expression2Kinases (X2K)

Identify the signaling components that may mediate changes in genome-wide expression profiles.

ST NETWORK: iBioMagazine

Explore the human side of science.

SCIENCE TRANSLATIONAL MEDICINE

www.sciencetranslationalmedicine.org

Integrating Medicine and Science

7 December issue: <http://scim.ag/stm120711>

FOCUS: Three Rs of Animal Testing for Regenerative Medicine Products

R. Robinson

Considerations of animal welfare have spurred the design of "smarter" preclinical studies intended to ultimately benefit patients.

FOCUS: ROCK in a Stiff Place

D. A. Lauffenburger

RESEARCH ARTICLE: Age-Related Intimal Stiffening Enhances Endothelial Permeability and Leukocyte Transmigration

J. Huynh et al.

Inhibiting endothelial cell contractility reverses the deleterious effects of age-related matrix stiffening on normal cell function.

REPORT: Penetration of Tenofovir and Emtricitabine in Mucosal Tissues: Implications for Prevention of HIV-1 Transmission

K. B. Patterson et al.

Antiretroviral drugs are found at different concentrations in human mucosal tissues with implications for pre-exposure prophylaxis trials to prevent HIV transmission.

SCIENCE CAREERS

www.sciencereers.org/career_magazine

Free Career Resources for Scientists

A Pharma Industry in Crisis

E. Pain

Scientists seeking pharma careers must adapt to sweeping changes in the industry.

<http://scim.ag/PharmaCrisis>

Future Pharma Scientists: Start Small

M. Price

As the industry moves away from the big-pharma model, young drug-development scientists are likely to find more and better opportunities at smaller companies.

<http://scim.ag/PharmaSearch>

Content Collection: Working in Pharma

Science Careers Staff

We present our best information and advice on working in the pharmaceuticals industry.

http://scim.ag/CC_Pharma

SCIENCE PODCAST

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Free Weekly Show

On the 9 December *Science* Podcast: detecting measles outbreaks with satellite imagery, decision-making in honeybee swarms, stepping up research funding in Europe, and more.

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Science Policy News and Analysis

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