

SPECIAL SECTION

Breakthrough of the Year

WINNER

1628 HIV Treatment as Prevention

RUNNERS-UP

1629 Asteroid Dust Solves Color Conundrum

1629 Archaic Humans' DNA Lives On

1630 Plant Life's Boxy Heart

1631 Glimpses of a Simpler Time

1632 Microbes R Us

1633 RTS,S—A Vaccine With Many Maybes

1633 Extrasolar? Extra Strange

1635 Industrial Molecules, Tailor-Made

1635 Removing Old Cells to Stay Young?

OTHER FEATURES

1630 Areas to Watch

1632 Scorecard: Rating Last Year's Areas to Watch

1634 A Disaster and a Warning—But of What?

>> Editorial p. 1604; News story p. 1626; Policy Forum p. 1645; Science Podcast; online at www.scim.ag/2011btoy

EDITORIAL

1604 Science Breakthroughs

Bruce Alberts

>> *Breakthrough of the Year* section p. 1628

NEWS OF THE WEEK

1610 A roundup of the week's top stories

NEWS & ANALYSIS

1613 Science Stays on Track in Last-Minute Spending Bill

1614 Tissue Says Blood Is Misleading, Confusing HIV Cure Efforts

1615 New Hope for a Devastating Neurological Disorder

 1616 Fall Meeting of the American Geophysical Union
 Climate Outlook Looking Much the Same, or Even Worse
 A Vesta Core and a Magnetic Field, Too?
 Megaquake Heightened The Risk to Tokyo
 Snapshots From the Meeting

NEWS FOCUS

1618 America's Lost City

Does North America Hold the Roots of Mesoamerican Civilization?

Preserving History, One Hill at a Time

1624 Crunch Time for North Korea's Revolutionary New University

1626 The Year in News

LETTERS

1636 Retraction

B. Alberts

Cultivating a Demand for Cookstoves

B. E. Robinson and J. Baumgartner

Response

W. J. Martin II et al.

Turkey's Rich Natural Heritage Under Assault

Ç. H. Şekercioğlu et al.

1639 CORRECTIONS AND CLARIFICATIONS

1641 TECHNICAL COMMENT ABSTRACTS



page 1618

BOOKS ET AL.

1642 The Origin of AIDS

J. Pepin, reviewed by P. Piot

1643 Visualize This

N. Yau;

Visual Complexity

M. Lima, reviewed by R. Kosara

1644 The Chemical History of a Candle

M. Faraday; F. A. J. L. James, Ed.
POLICY FORUM

1645 ARVs as HIV Prevention: A Tough Road to Wide Impact

J. D. Shelton

>> *Breakthrough of the Year* section, p. 1628

PERSPECTIVES

1647 Voyagers of Discovery

J. L. Linsky

>> *Research Article* p. 1665

1648 To Group or Not to Group?

E. Szathmáry

1650 An Exit Strategy for Measles Virus

V. Racaniello

1651 Efficient Fluorination of Organic Molecules with Chiral Atoms

M. Sodeoka

>> *Report* p. 1681

CONTENTS continued >>

COVER

Scanning electron micrograph of HIV viruses, each ~120 nanometers in diameter, on an infected cell surface. This year, clinical trial results showing that antiretroviral treatments for HIV also keep the virus from spreading raised hopes of ending HIV/AIDS epidemics in whole populations. See the Breakthrough of the Year special section beginning on page 1628 and at www.scim.ag/2011btoy.

Image: Thomas Deerinck, Kathleen Fitzpatrick, John Guatelli, and Mark Ellisman, NCMIR, UCSD/Visuals Unlimited, Inc.

DEPARTMENTS

 1602 This Week in *Science*

1605 Editors' Choice

 1608 *Science* Staff

1659 AAAS News & Notes

1735 New Products

 1736 *Science* Careers

- 1652 **Blood-Brain Barrier Differentiation**
B. Engelhardt
>> Report p. 1727
- 1654 **Earth's Redox History**
J. M. Hayes
>> Report p. 1694
- 1655 **Terminal Developments in Ediacaran Embryology**
N. J. Butterfield
>> Report p. 1696

SCIENCE PRIZE ESSAY

- 1657 **Lessons from a Science Education Portal**
D. Micklos et al.

BREVIJA

- 1664 **Pigeons on Par with Primates in Numerical Competence**
D. Scarf et al.
Pigeons' ability to use abstract numerical rules appears identical to that of monkeys.

RESEARCH ARTICLES

- 1665 **Voyager Measurements of Hydrogen Lyman- α Diffuse Emission from the Milky Way**
R. Lallement et al.
This emission, observed in other galaxies mainly from regions around newborn stars, has now been detected in our Galaxy.
>> Perspective p. 1647
- 1669 **Npas4 Regulates a Transcriptional Program in CA3 Required for Contextual Memory Formation**
K. Ramamoorthi et al.
A transcription factor dependent on electrical activity regulates genes involved in long-term memory formation.
- 1675 **How a DNA Polymerase Clamp Loader Opens a Sliding Clamp**
B. A. Kelch et al.
Crystal structures show how the sliding clamp that facilitates processive replication is loaded onto DNA.

REPORTS

- 1681 **Asymmetric Electrophilic Fluorination Using an Anionic Chiral Phase-Transfer Catalyst**
V. Raniyar et al.
A chiral phosphate ion plays a dual role, coaxing a fluorinating agent into solution and then catalyzing its reaction there.
>> Perspective p. 1651
- 1684 **Angular Momentum Conservation in Dipolar Energy Transfer**
D. Guo et al.
Spin states restrict energy transfer between donor and acceptor chromophores that appear otherwise compatible.
- 1687 **Graphitic Tribological Layers in Metal-on-Metal Hip Replacements**
Y. Liao et al.
A graphitic layer is found to be the cause of low friction in metal-on-metal hip implants.
- 1690 **Evidence from Numerical Experiments for a Feedback Dynamo Generating Mercury's Magnetic Field**
D. Heyner et al.
Feedback between the external magnetospheric field and the internal magnetic field explains Mercury's weak magnetic field.
- 1694 **Isotopic Evidence for Massive Oxidation of Organic Matter Following the Great Oxidation Event**
L. R. Kump et al.
Analysis of two-billion-year-old rocks reveals an extreme carbon-cycle disruption after atmospheric oxygen increased.
>> Perspective p. 1654
- 1696 **Fossilized Nuclei and Germination Structures Identify Ediacaran "Animal Embryos" as Encysting Protists**
T. Hultgren et al.
High-resolution imaging of 570-million-year-old fossils suggests that they were not remnants of early animals.
>> Perspective p. 1655
- 1699 **From Flat Foot to Fat Foot: Structure, Ontogeny, Function, and Evolution of Elephant "Sixth Toes"**
J. R. Hutchinson et al.
Elephants have an extra bone in their feet that can be traced through their fossil record to reveal a transition from flat to raised feet.
- 1703 **Global Seabird Response to Forage Fish Depletion—One-Third for the Birds**
P. M. Cury et al.
One-third of maximum fish biomass must be available for seabirds to sustain high breeding success.
- 1706 **Mouse B-Type Lamins Are Required for Proper Organogenesis But Not by Embryonic Stem Cells**
Y. Kim et al.
Mice lacking critical structural components of the nucleus, lamin-B intermediate filament proteins, remain viable until birth.
- 1710 **Direct Redox Regulation of F-Actin Assembly and Disassembly by Mical**
R.-J. Hung et al.
A protein involved in redox signaling disassembles actin filaments and alters their reassembly.
- 1713 **Mismatch Repair, But Not Heteroduplex Rejection, Is Temporally Coupled to DNA Replication**
H. Hombauer et al.
Repair of base-pair mismatches is coordinated with DNA replication to ensure correction of the newly synthesized DNA strand.



page 1643

- 1716 **Model-Driven Engineering of RNA Devices to Quantitatively Program Gene Expression**
J. M. Carothers et al.
Evidence is presented for the feasibility of computer-aided design of biological circuits for regulation of gene expression.
- 1720 **A Cultured Greigite-Producing Magnetotactic Bacterium in a Novel Group of Sulfate-Reducing Bacteria**
C. T. Lefèvre et al.
The crystal structure of biomineralized magnetic nanocrystals depends on environmental and genetic factors.
- 1723 **The Ribosome Modulates Nascent Protein Folding**
C. M. Kaiser et al.
Single-molecule studies show that the ribosome promotes efficient folding of a two-domain protein.
- 1727 **The Hedgehog Pathway Promotes Blood-Brain Barrier Integrity and CNS Immune Quiescence**
J. I. Alvarez et al.
Hedgehog signaling is required for maintaining the integrity of the blood-brain barrier.
>> Perspective p. 1652
- 1730 **Fear Erasure in Mice Requires Synergy Between Antidepressant Drugs and Extinction Training**
N. N. Karpova et al.
Long-term loss of fearful memories can be achieved through a combination of antidepressant drugs and exposure therapy.

CONTENTS continued >>

SCIENCEONLINE

SCIENCEEXPRESS

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High-Resolution View of the Yeast Meiotic Program Revealed by Ribosome Profiling

G. A. Brar et al.

During yeast sporulation the production of most proteins is tightly regulated by both messenger RNA levels and translational control.

10.1126/science.1215110

Polymerase Exchange During Okazaki Fragment Synthesis Observed in Living Cells

G. Lia et al.

Single-molecule microscopy suggests that a new core polymerase is used to synthesize each Okazaki fragment.

10.1126/science.1210400

Widespread Genetic Switches and Toxicity Resistance Proteins for Fluoride

J. L. Baker et al.

A fluoride-sensing riboswitch regulates the expression of putative fluoride channels in prokaryotes.

10.1126/science.1215063

An All-Silicon Passive Optical Diode

L. Fan et al.

A silicon-based device is developed that allows the asymmetric propagation of light.

10.1126/science.1214383

Broadband Light Bending with Plasmonic Nanoantennas

X. Ni et al.

A plasmonic antenna array is used to control the propagation of a light beam across an interface.

10.1126/science.1214686

SCIENCE NOW

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Highlights From Our Daily News Coverage

Is Jupiter Eating Its Own Heart?

Some gas giants may have destroyed their cores.

http://scim.ag/Jupiter_Core

Are You Inhaling Secondhand Coke?

Researchers pick up traces of illegal drugs in the atmosphere.

<http://scim.ag/Secondhand-Coke>

Solar Cells Capture Lost Energy

New materials generate more electrical charges than the number of photons that energize them.

<http://scim.ag/Solar-Cells>

TECHNICAL COMMENTS

Comment on "Nocturnality in Dinosaurs Inferred from Scleral Ring and Orbit Morphology"

M. I. Hall et al.

Full text at www.sciencemag.org/cgi/content/full/334/6063/1641-b

Response to Comment on "Nocturnality in Dinosaurs Inferred from Scleral Ring and Orbit Morphology"

L. Schmitz and R. Motani

Full text at www.sciencemag.org/cgi/content/full/334/6063/1641-c

SCIENCE SIGNALING

www.sciencesignaling.org

The Signal Transduction Knowledge Environment

20 December issue: <http://scim.ag/ss122011>

RESEARCH ARTICLE: A Distinct Interaction Mode Revealed by the Crystal Structure of the Kinase p38 α with the MAPK Binding Domain of the Phosphatase MKP5

Y.-Y. Zhang et al.

PERSPECTIVE: Three-Dimensional Docking in the MAPK p38 α

E. J. Goldsmith

Specific anti-inflammatory drugs may be possible with knowledge of how a kinase docks to its inactivating phosphatase.

RESEARCH ARTICLE: Protein O-GlcNAcylation Is Required for Fibroblast Growth Factor Signaling in *Drosophila*

D. Mariappa et al.

Fibroblast growth factor signaling is connected to metabolism through the intracellular O-GlcNAcylation of the receptor complex.

RESEARCH ARTICLE: Human Regulatory T Cells Rapidly Suppress T Cell Receptor–Induced Ca²⁺, NF- κ B, and NFAT Signaling in Conventional T Cells

A. Schmidt et al.

PODCAST

P. H. Kramer and A. M. VanHook

Inhibition of calcium signaling is critical for the suppression of T cell responses by regulatory T cells.

REVIEW: The Emerging Role of Linear Ubiquitination in Cell Signaling

C. H. Emmerich et al.

Linear ubiquitin chains transmit signals that are induced by diverse stimuli and regulate cell activation and death.

EVENTS

Plan your 2012 travels with this calendar of signaling-related meetings and conferences.

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Integrating Medicine and Science

21 December issue: <http://scim.ag/stm122111>

PERSPECTIVE: Mapping the Road Forward in Alzheimer's Disease

D. M. Holtzman et al.

A better understanding of genetics, protein aggregation, and neurobiology combined with improved clinical trial design is needed to combat Alzheimer's disease.

REVIEW: Forty-Year Journey of Angiogenesis Translational Research

Y. Cao et al.

Antiangiogenic drugs successfully treat retinal vascular diseases, but challenges remain in the realm of cancer therapy.

RESEARCH ARTICLE: Predicting Adverse Drug Events Using Pharmacological Network Models

A. Cami et al.

A network-based method that uses available pharmacosafety data can predict yet-to-be-discovered adverse drug events to help reduce drug-associated morbidity and mortality.

RESEARCH ARTICLE: Dynamics of Dengue Disease Severity Determined by the Interplay Between Viral Genetics and Serotype-Specific Immunity

M. OhAinle et al.

The complex interactions between serotype-specific immunity and viral genetics drive dengue disease outcomes in endemic populations.

SCIENCE CAREERS

www.sciencereers.org/career_magazine

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Breakthrough Behind the Scenes

M. Price

Kimberly Powers's epidemiological research on HIV helped set the stage for this year's Science Breakthrough of the Year.

<http://scim.ag/KimPowers>

Experimental Error: Truly Alternative Careers

A. Ruben

Looking for a career that is off the well-trod path? Pick up your divining rod.

http://scim.ag/EE_TrulyAlternative

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