NEWS OF THE WEEK

Scientists Plant Grass-Roots Effort for Obama in Final Days of Contest

Eat, Drink, and Be Wary: A Sugar’s Sour Side

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Two Sets of Cave Bear DNA Uncover the Bear Facts

U.K. Approves New Embryo Law

NEWS FOCUS

You Say You Want a Revolution

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More Than Skin Deep

Paul Klee, a Tragic Metamorphosis

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Skulls Show Dinosaurs Blew Their Horns

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The Perils and Promises of Digital Democracy


The Hidden Costs of Clean Election Reform

F. C. Schaffer, reviewed by M. Johnston

The Persuadable Voter

Wedge Issues in Presidential Campaigns D. S. Hillygus and T. G. Shields,

reviewed by D. A. M. Peterson

Mathematics and Democracy

Designing Better Voting and Fair-Division Procedures S. J. Brams,

reviewed by I. McLean

Unequal Democracy

The Political Economy of the New Gilded Age L. M. Bartels, reviewed by R. Grafstein

PhET: Simulations That Enhance Learning

C. E. Wieman, W. K. Adams, K. K. Perkins

Genomics Education Partnership

D. Lopatto et al.

Assessing Ground Shaking

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Time-Resolved Dynamics in N$_2$O$_4$ Probed Using High Harmonic Generation
W. Li et al.
Electrons can be ejected from multiple orbitals of N$_2$O$_4$ by exploiting different stages in its excited vibrations, yielding an attosecond light probe of molecular dynamics. 10.1126/science.1163077

BIOCHEMISTRY
Structural Evidence for Common Ancestry of the Nuclear Pore Complex and Vesicle Coats
S. G. Brohawn et al.
The protein complex that controls entry and exit from the cell nucleus shares a structural element with vesicle coat proteins, suggesting that it is built around a lattice-like scaffold. 10.1126/science.1165886

LETTER: European Union and NIH Collaborate
E. A. Zerhouni and J. Potočnik

10.1126/science.1167667

MICROBIOLOGY
BREVIA: Bat White-Nose Syndrome: An Emerging Fungal Pathogen?
D. S. Blehert et al.
Bats that died en masse in New York state while they were hibernating were infected with a cold-tolerant fungus. 10.1126/science.1163874

CHEMISTRY
High Harmonic Generation from Multiple Orbitals in N$_2$
B. K. McFarland, J. P. Farrell, P. H. Bucksbaum, M. Gühr
Electron ejection from multiple N$_2$ orbitals, controlled by the molecule’s orientation relative to a laser, produces attosecond light spectra that can reveal molecular dynamics. 10.1126/science.1162780

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Aneuploidy Advantages?
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A New Glance at Glia
A. Reichenbach and T. Pannicke

Retrospective: George E. Palade (1912–2008)
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Comment on “Differential Rescue of Light- and Food-Entrainable Circadian Rhythms”
R. E. Mistlberger et al.
full text at www.sciencemag.org/cgi/content/full/322/5902/675a

Response to Comment on “Differential Rescue of Light- and Food-Entrainable Circadian Rhythms”
P. M. Fuller, J. Lu, C. B. Saper
full text at www.sciencemag.org/cgi/content/full/322/5902/675b

REVIEW
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Structural Insights into a Circadian Oscillator
C. H. Johnson, M. Egli, P. L. Stewart

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Wolbachia and Virus Protection in Insects
L. M. Hedges, J. C. Brownlie, S. L. O’Neill, K. N. Johnson
An endosymbiotic bacterium survives and spreads in populations of Drosophila because it protects its insect hosts from death caused by certain RNA viruses. >> Science Podcast

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GEOCHEMISTRY
Peptides Enhance Magnesium Signature in Calcite: Insights into Origins of Vital Effects
A. E. Stephenson et al.
A simple hydrophilic peptide helps to regulate the magnesium content of calcite in marine organisms, explaining a complication in using this as an ocean thermometer.

GEOPHYSICS
Trampoline Effect in Extreme Ground Motion
S. Aoi, T. Kunugi, H. Fujiwara
Upward ground acceleration in a recent earthquake in Japan reached about four times that of gravity, as if the upper soil layer were bouncing on a trampoline in the ground below. (p. 686)

ATMOSPHERIC SCIENCE
Tracing the Origin and Fate of NO₂ in the Arctic Atmosphere Using Stable Isotopes in Nitrate
S. Morin et al.
Measurements of N and O isotopes show that nitrate in the high Arctic is produced when spring sunlight oxidizes pollutants brought from lower latitudes since the past summer.

ANTHROPOLOGY
Ages for the Middle Stone Age of Southern Africa: Implications for Human Behavior and Dispersal
Z. Jacobs et al.
Dating of the first use of symbols and jewelry in South Africa shows that the emergence of modern human behavior was not influenced by just environmental factors.

EVOLUTION
Energy Uptake and Allocation During Ontogeny
C. Hou et al.
A model of how developing animals assimilate food and allocate and store energy for maintenance, growth, and activity accurately predicts data from mammals and birds.

ECOLOGY
Experimental Evidence for Spatial Self-Organization and Its Emergent Effects in Mussel Bed Ecosystems
J. van de Koppel et al.
Interactions among individual mussels result in large-scale spatial patterns in mussel beds that are beneficial to the population—by promoting secondary production, for example.

ECOLOGY
Natal Homing and Connectivity in Atlantic Bluefin Tuna Populations
J. R. Rooker et al.
Isotopes in the ear bones of tuna reveal that two populations—from the Gulf of Mexico and the Mediterranean—mingle in the Atlantic as adolescents but return home to breed.

NEUROSCIENCE
Glia Are Essential for Sensory Organ Function in C. elegans
T. Bacaj, M. Tevlin, Y. Lu, S. Shaham
Nonneural glial cells are required for the normal operation of the main sensory organ of a nematode, influencing neuronal shape and function, as well as behavior.

GENETICS
HARP Is an ATP-Driven Annealing Helicase
T. Yusufzai and J. T. Kadonaga
The gene deleted in a complex genetic disease is a reverse helicase, a motor-like enzyme that uses adenosine triphosphate to zip up separated strands of DNA.

MOLECULAR BIOLOGY
Polycym Proteins Targeted by a Short Repeat RNA to the Mouse X Chromosome
J. Zhao, B. K. Sun, J. A. Erwin, J.-J. Song, J. T. Lee
A small RNA cleaved from a larger precursor recruits silencing proteins to the X chromosome to inactivate it in female mammals, which have an extra copy.

IMMUNOLOGY
Deletion of Trpm7 Disrupts Embryonic Development and Thymopoiesis Without Altering Mg²⁺ Homeostasis
J. Jin et al.
A cation channel that conducts both Ca²⁺ and Mg²⁺ is unexpectedly required for normal mouse development, specifically for proper maturation of the thymus and T cells.
Programming macrophages to fuse.

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**PROTOCOL: High-Resolution Imaging of Redox Signaling in Live Cells Through an Oxidation-Sensitive Yellow Fluorescent Protein**


Measure and visualize intracellular changes in the redox state.

**JOURNAL CLUB: The HIF-1α-C/EBPα Axis**

H. P. Janardhan

Interactions between HIF-1α and C/EBPα may mediate reciprocal functional effects.

**PODCAST**

R. Linding and A. M. VanHook

Rune Linding explains how combining NetPhorest with a genetic screen enables researchers to gain insight into the relationships among the identified players.

*Enthusiasm for virology.*

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**The Pathways to Independence Award: Early Returns**

S. Carpenter

NIH’s new transition awards program seems to be achieving its goal.

**The Other Life Sciences Industry**

C. Mintz

The medical devices and diagnostics industry is underappreciated as a life sciences career destination.

**A Virologist With a Contagious Enthusiasm**

E. Pain

French virologist Ali Saib is praised for his research achievements and efforts to attract a diversity of people to science.

**From the Archives: Lab Dynamics—Science at the Balcony**

C. M. Cohen and S. L. Cohen

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