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
SCIENCESCOPE
Two Sets of Cave Bear DNA Uncover the Bear Facts
U.K. Approves New Embryo Law
NEWS FOCUS
You Say You Want a Revolution
>> Science Podcast
More Than Skin Deep
Paul Klee, a Tragic Metamorphosis
Society of Vertebrate Paleontology 68th Annual Meeting
Skulls Show Dinos Blew Their Horns
Two Legs Good
Snapshots From the Meeting
LETTERS
Informed Consent in Social Science P. Couture
Response J. A. List
Viewing NASA’s Mars Budget with Resignation A. Stern
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CORRECTIONS AND CLARIFICATIONS
CHEMISTRY

Time-Resolved Dynamics in N₂O₄ Probed Using High Harmonic Generation
W. Li et al.
Electrons can be ejected from multiple orbitals of N₂O₄ 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 N₂
B. K. McFarland, J. P. Farrell, P. H. Bucksbaum, M. Gühr
Electron ejection from multiple N₂ orbitals, controlled by the molecule’s orientation relative to a laser, produces attosecond light spectra that can reveal molecular dynamics. 10.1126/science.1162780

RESEARCH ARTICLES

CELL BIOLOGY

Aneuploidy Affects Proliferation and Spontaneous Immortalization in Mammalian Cells
B. R. Williams et al.
Mouse cell lines carrying extra copies of one of four chromosomes all show less cell proliferation and higher gene expression, but vary in how fast they become cancer-like cells. >> Perspective p. 692

BIOCHEMISTRY

Structure and Molecular Mechanism of a Nucleobase–Cation–Symport-1 Family Transporter
S. Weyand et al.
The structure of a membrane transporter in an open state suggests that in- and out-facing cavities reciprocally open and close coordinated by two transmembrane segments.

PLANETARY SCIENCE

Magnetism on the Angrite Parent Body and the Early Differentiation of Planetesimals
B. P. Weiss et al.
A type of primitive meteorite from the earliest small bodies in the solar system preserves remnant magnetism, implying that these planetesimals had a convecting metallic core.

PHYSICS

The Role of Impulse on the Initiation of Particle Movement Under Turbulent Flow Conditions
P. Diplas et al.
Entrainment of sediment grains from, say, a stream bed, by turbulent flow depends not just on the magnitude of the applied fluid forces but also on their duration.

MATERIALS SCIENCE

Molecular Confinement Accelerates Deformation of Entangled Polymers During Squeeze Flow
H. D. Rowland et al.
When polymers are squeezed at nanometer scales, the longest chains unexpectedly flow more easily, even though in theory they should be the most entangled. >> Perspective p. 689
REPORTS CONTINUED...

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. >> Perspective 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. Shabam
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. >> Perspective p. 693

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
Polycomb 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.
**SCIENCE SIGNALING**

**RESEARCH ARTICLE:** Essential Role of DAP12 Signaling in Macrophage Programming into a Fusion-Competent State


Signaling through the DAP12 adaptor triggers a gene expression profile that makes macrophages competent to fuse and form multinucleated giant cells.

**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.

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**SCIENCE CAREERS**

**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

How you discuss content or data can be as important as the content or data itself.

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**SCIENCE NOW**

**Viagra Stands Firm Against Muscular Dystrophy**

Famous anti-impotence pill might compensate for muscle-weakening enzyme deficiency.

**Thanks for Erasing the Memories**

Combination of genetic engineering and drugs wipes out specific memories in mice.

**Not Your Garden-Variety Tomato**

Researchers engineer cancer-fighting purple tomatoes.