**NEWS OF THE WEEK**

- New Malaria Plan Called Ambitious by Some, Unrealistic by Others
- NAS Study May Fail to Settle Anthrax Case
- Europeans Think Big for Particle Detectors

**SCIENCESCOPE**

- Adding a Turn to the Roadmap, Zerhouni to Step Down
- U.S. Oceans Chief Leaves a Mixed Legacy in His 7-Year Wake
- Minerals Suggest Water Once Flowed on Mars—But Where?
- Quantum Network Set to Send Unrackable Secrets
- Winds, Not Just Global Warming, Eating Away at the Ice Sheets
- Biochemist Robert Tjian Named President of Hughes Institute
- An International Plan to Hatch Scientist-Entrepreneurs

**NEWS FOCUS**

- The Peanut Butter Debate
- Patents: A Recipe for Problems?
- >> Science Podcast
- Culture Wars Over How to Find an Ancient Niche for Life on Mars
- Edward Buckler: Romping Through Maize Diversity

**LETTERS**

- Keeping an Eye on the Prize R. A. Sedjo
- Protecting Aggregate Genomic Data E. A. Zerhouni and E. G. Nabel
- Closing A Loophole in the FDA Amendments Act E. H. Turner, N. J. Moaleji, B. L. Arnold
- Response D. A. Zarin and T. Tse
- Big Payoffs Possible for Small-Molecule Screening J. H. Toney

**CORRECTIONS AND CLARIFICATIONS**

**BOOKS ET AL.**

- Dissent over Descent Intelligent Design’s Challenge to Darwinism S. Fuller, reviewed by M. Ruse
- Physics for Future Presidents The Science Behind the Headlines R. A. Muller, reviewed by K. R. Foster

**POLICY FORUM**

- Sustainable Biofuels Redux G. P. Robertson et al.

**PERSPECTIVES**

- The Shining Make-Up of Our Star M. Asplund
- Bugs’ Bugs M. R. Berenbaum and T. Eisner
- >> Brevia p. 63
- From Ocean to Stratosphere R. Deckert and M. Dameris
- A Light Touch Catalyzes Asymmetric Carbon-Carbon Bond Formation P. Renaud and P. Leong >> Report p. 77
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. >> Science Podcast 10.1126/science.1161473

CHEMISTRY
Molecular Confinement Accelerates Deformation of Entangled Polymers During Squeeze Flow
H. D. Rowland, W. P. King, J. B. Pethica, G. L. W. Cross
When polymers are squeezed at nanometer scales, the longest chains unexpectedly flow more easily, even though in theory they should be the most entangled. 10.1126/science.1157945

CELL BIOLOGY
Ubiquitin-Like Protein Involved in the Proteasome Pathway of Mycobacterium tuberculosis
A prokaryotic version of ubiquitin, a eukaryotic tag for protein degradation, is linked to lysines in prokaryotic proteins destined for destruction, a process called pupylation. 10.1126/science.1163885

RESEARCH ARTICLE
GEOLOGY
A Chronology of Paleozoic Sea-Level Changes
B. U. Haq and S. R. Schutter
The marine sedimentary rock record shows that sea level rose from the Early Cambrian to the Ordovician and then fluctuated through the Permian, partly in response to glaciations.

PHYSICS
Ultrafast X-ray Thomson Scattering of Shock-Compressed Matter
A. L. Kritcher et al.
A transient x-ray source reveals rapid structural changes in LiH as a high-powered laser produces extreme compression and heating, inducing an insulator-to-metal transition.

APPLIED PHYSICS
Time Reversal and Negative Refraction
J. B. Pendry
Optically active materials with nonlinear optical properties are predicted to mimic negatively refractive materials but without losses associated with true negative refraction.

CHEMISTRY
Surface-Modified Carbon Nanotubes Catalyze Oxidative Dehydrogenation of n-Butane
J. Zhang, X. Liu, R. Blume, A. Zhang, R. Schlögl, D. S. Su
Carbon nanotubes decorated with phosphate groups can catalyze the partial oxidation of alkanes, a process that has normally required complex metal oxides.
REPORTS CONTINUED...

CHEMISTRY
Merging Photoredox Catalysis with Organocatalysis: The Direct Asymmetric Alkylation of Aldehydes
D. A. Nicewicz and D. W. C. MacMillan
When irradiated by light, a ruthenium-organic catalyst creates intermediates with unpaired electrons that undergo otherwise intractable asymmetric reactions. >> Perspective p. 55

CHEMISTRY
Temperature-Induced Hydrophobic-Hydrophilic Transition Observed by Water Adsorption
H.-J. Wang, X.-K. Xi, A. Kleinhammes, Y. Wu
The insides of single-walled carbon nanotubes repel water at 22°C but absorb it at 8°C, showing that temperature finely controls the dynamics of confined water nanodroplets.

CLIMATE CHANGE
Atmospheric CO₂ and Climate on Millennial Time Scales During the Last Glacial Period
J. Ahn and E. J. Brook
A detailed gas record from the Byrd ice core from 90,000 to 20,000 years ago shows that warming episodes tracked high CO₂ levels in Antarctica but lagged by several thousands of years in Greenland.

EVOLUTION
Rates of Molecular Evolution Are Linked to Life History in Flowering Plants
S. A. Smith and M. J. Donoghue
A phylogenetic analysis shows that long-lived trees and shrubs have lower rates of molecular evolution than short-lived herbaceous plants.

DEVELOPMENTAL BIOLOGY
Chemokine Signaling Controls Endodermal Migration During Zebrafish Gastrulation
S. Nair and T. F. Schilling
During zebrafish gastrulation, chemokines are required for integrin-dependent adhesion of endodermal cells to mesoderm, a role distinct from their action as chemoattractants.

STRUCTURAL BIOLOGY
Molecular Architecture of the "Stressosome," a Signal Integration and Transduction Hub
J. Marles-Wright et al.
The stressosome, a huge multiprotein complex, has a virus capsid–like core and variable extensions that detect and integrate signals to activate the stress response.

NEUROSCIENCE
Internally Generated Reactivation of Single Neurons in Human Hippocampus During Free Recall
H. Gelbard-Sagiv et al.
The firing patterns of brain neurons recorded from people watching a video episode were the same as those recorded during later recall of the same show.

PLANT SCIENCE
A Physical Map of the 1-Gigabase Bread Wheat Chromosome 3B
E. Pax et al.
A physical map of the largest chromosome of wheat provides the first step toward sequencing the huge, 17-billion base pair genome of this critical food crop.

CELL BIOLOGY
High-Quality Binary Protein Interaction Map of the Yeast Interactome Network
H. Yu et al.
Comparison of existing methods for mapping protein-protein interactions in yeast cells shows that the high-throughput approaches are complementary to one another. >> Perspective p. 56

CELL BIOLOGY
Ceramide Biogenesis Is Required for Radiation-Induced Apoptosis in the Germ Line of C. elegans
X. Deng et al.
In worms, lipid signaling at the mitochondria is necessary for the germ cell death that follows radiation damage, but not for normal developmental cell death.

PSYCHOLOGY
Lacking Control Increases Illusory Pattern Perception
J. A. Whitson and A. D. Galinsky
When subjects receive false feedback in lab tests and so feel a loss of control, they are more apt to perceive patterns in random visual static and imagine conspiracies. >> Science Podcast
Dangerous diet.

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Plan puts price tag on pollution from power industry.

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I. S. Levine
If you are bored at work, talk to people and try something new.

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B. L. Benderly
An unorthodox program helps young innovators turn inspiration into reality.

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V. Maneeratana
The biggest challenges in moving abroad are not always scientific.

October 2008 Funding News
J. Fernández
Learn about the latest in research funding, scholarships, fellowships, and internships.

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