NEWS OF THE WEEK
New Malaria Plan Called Ambitious by Some, Unrealistic by Others 26
NAS Study May Fail to Settle Anthrax Case 27
Europeans Think Big for Particle Detectors 29
SCIENCESCOPE 29
Adding a Turn to the Roadmap, Zerhouni to Step Down 30
U.S. Oceans Chief Leaves a Mixed Legacy in His 7-Year Wake 31
Minerals Suggest Water Once Flowed on Mars—But Where? 32
Quantum Network Set to Send Uncrackable Secrets 32
Winds, Not Just Global Warming, Eating Away at the Ice Sheets 33
Biochemist Robert Tjian Named President of Hughes Institute 35
An International Plan to Hatch Scientist-Entrepreneurs 35

NEWS FOCUS
The Peanut Butter Debate 36
Patents: A Recipe for Problems?
>> Science Podcast
Culture Wars Over How to Find an Ancient Niche for Life on Mars 39
Edward Buckler: Romping Through Maize Diversity 40

LETTERS
Keeping an Eye on the Prize R. A. Sedjo 43
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 44

BOOKS ET AL.
Dissent over Descent Intelligent Design’s Challenge to Darwinism S. Fuller, reviewed by M. Ruse 47
Physics for Future Presidents The Science Behind the Headlines R. A. Muller, reviewed by K. R. Foster 48

POLICY FORUM
Sustainable Biofuels Redux G. P. Robertson et al. 49

PERSPECTIVES
The Shining Make-Up of Our Star M. Asplund 51
Bugs’ Bugs M. R. Berenbaum and T. Eisner
>> Brevia p. 63
From Ocean to Stratosphere R. Deckert and M. Dameris 53
A Light Touch Catalyzes Asymmetric Carbon-Carbon Bond Formation P. Renaud and P. Leong
>> Report p. 77
Not Comparable, But Complementary L. J. Jensen and P. Bork
>> Report p. 104
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

REVIEW
PSYCHOLOGY
The Origin and Evolution of Religious Prosociality
A. Norenzayan and A. F. Shariff

BREVIA
ECOLOGY
Bacterial Protection of Beetle-Fungus Mutualism
J. J. Scott et al.
The southern pine beetle uses a polyene peroxide antifungal agent secreted by a bacterium to protect its fungal food source from attack by another fungal species. >> Perspective p. 52

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.
Podcast 

levels in 

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Change of address:

the same show.

The firing patterns of brain neurons recorded from people watching a 

H. Gelbard-Sagiv

in Human Hippocampus During Free Recall

Internally Generated Reactivation of Single Neurons

NEUROSCIENCE

activate the stress response.

core and variable extensions that detect and integrate signals to 

The stressosome, a huge multiprotein complex, has a virus capsid–like 

J. Marles-Wright

Signal Integration and Transduction Hub

Molecular Architecture of the "Stressosome," a 

J. Marles-Wright et al.

STRUCTURAL BIOLOGY

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.

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.

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.

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.

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.

PLANT SCIENCE

A Physical Map of the 1-Gigabase Bread Wheat Chromosome 3B

E. Paux 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.
Purinergic control of T cell activation by ATP released through Pannexin-1 hemichannels.


Pannexin hemichannel-mediated release of ATP provides an autocrine, costimulatory signal for T cell activation.

Kinome siRNA screen identifies regulators of ciliogenesis and Hedgehog signal transduction.

M. Evangelista, T. Y. Lim, J. Lee, L. Parker, A. Ashique, A. S. Peterson, W. Ye, D. P. Davis, F. J. de Sauvage

Cdc2l1 is a component of the Hh signaling pathway and opposes the activity of the negative regulator Sufu.

Perspective: A Wnt-fall for Gene Regulation—Repression

N. P. Hoverter and M. L. Waterman

Recognition of a nonclassical Wnt-response element by the transcription factor TCF results in β-catenin acting as a transcriptional repressor of certain Wnt target genes.

Presentation: Somatic cell genetics for the study of NF-κB signaling in innate immunity

R. Krumbach, S. Bloor, G. Ryzhakov, F. Randow

A forward genetic screen in immortalized cells identifies NF-κB signaling components required to transduce signals from Toll-like receptors.