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Editor summaries of this week's papers.
Science 3 October 2008: 12.
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☐ Editorial:
A Populist Movement for Health?
Jim Wells and Mary Woolley
Science 3 October 2008: 15.
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Editors' Choice
Highlights of the recent literature.
Science 3 October 2008: 16.
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☐ ***Science* Podcast**
Science 3 October 2008: 118.

Summary: The 3 October 2008 show includes illusory pattern perception, transatlantic bluefin tuna movements, relieving malnutrition with high-calorie rations, and more.

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☐ **NEW PRODUCTS**
Science 3 October 2008: 118.
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News of the Week

☐ **INFECTIOUS DISEASE: New Malaria Plan Called Ambitious By Some, Unrealistic by Others**
Leslie Roberts
Science 3 October 2008: 26-27.

Summary: The goals of the Global Malaria Action Plan (GMAP), announced last week, are stunningly ambitious: Reduce malaria deaths to near zero by 2015, then progressively eradicate the disease from the planet. But many malaria experts say it's unlikely that GMAP will meet its targets.

Full Text » PDF »

☐ **ANTHRAX INVESTIGATION: NAS Study May Fail to Settle Anthrax Case**
Yudhijit Bhattacharjee
Science 3 October 2008: 27.

Summary: Members of Congress and bioterrorism experts are voicing concerns that the review of the scientific evidence in the FBI's case against Bruce Ivins, the Army microbiologist implicated in the anthrax letter attacks of 2001, won't counter skepticism that Ivins, working solo, was the perpetrator of the attacks.

Full Text » **PDF »**

☐ **ASTROPARTICLE PHYSICS: Europeans Think Big for Particle Detectors**

Daniel Clery

Science 3 October 2008: 29.

Summary: European physicists who study particles from outer space made a pitch this week for the ambitious and costly experiments they want to build over the next decade.

Full Text » **PDF »**

☐ **NATIONAL INSTITUTES OF HEALTH: Adding a Turn to the Roadmap, Zerhouni to Step Down**

Jocelyn Kaiser

Science 3 October 2008: 30.

Summary: Without saying much about his next move, Elias Zerhouni announced last week that he is resigning at the end of October after more than 6 years as director of the U.S. National Institutes of Health.

Full Text » **PDF »**

☐ **NOAA: U.S. Oceans Chief Leaves a Mixed Legacy in His 7-Year Wake**

Eli Kintisch

Science 3 October 2008: 31.

Summary: Last week, former Navy Vice Adm. Conrad Lautenbacher announced he is stepping down as administrator of the U.S. National Oceanic and Atmospheric Administration, and scientists say the spry technocrat leaves a reorganized and stronger NOAA research program--as well as some big headaches for the next U.S. oceans skipper.

Full Text » **PDF »**

☐ **PLANETARY SCIENCE: Minerals Suggest Water Once Flowed on Mars--But Where?**

Richard A. Kerr

Science 3 October 2008: 32.

Summary: Scientists on the Phoenix mission to the high arctic of Mars announced this week that the rover had found some long-sought soil minerals that are "indicators of liquid water in the past." The catch is that team members can't say for certain when or where the water was liquid.

Full Text » **PDF »**

☐ **CRYPTOGRAPHY: Quantum Network Set to Send Uncrackable Secrets**

Adrian Cho

Science 3 October 2008: 32-33.

Summary: Next week in Vienna, European scientists and engineers will put the bizarre and abstruse laws of quantum mechanics to a practical, everyday use. Researchers will demonstrate a network for transmitting uncrackable encoded messages in quantum-mechanical packets of light.

Full Text » **PDF »**

GLACIOLOGY: Winds, Not Just Global Warming, Eating Away at the Ice Sheets
Richard A. Kerr
Science 3 October 2008: 33.

Summary: Two new studies point to random, wind-induced circulation changes in the ocean--not global warming--as the dominant cause of the recent ice losses through the glaciers draining both the Greenland and West Antarctic ice sheets.

Full Text » **PDF »**

RESEARCH FOUNDATIONS: Biochemist Robert Tjian Named President of Hughes Institute
Jocelyn Kaiser
Science 3 October 2008: 35.

Summary: The Howard Hughes Medical Institute, the largest private funder of biomedical research in the United States, has chosen a new president. He is University of California, Berkeley, biochemist Robert Tjian, a longtime Hughes investigator known as a driven researcher and devoted mentor.

Full Text » **PDF »**

FELLOWSHIPS: An International Plan to Hatch Scientist-Entrepreneurs
Richard Stone
Science 3 October 2008: 35.

Summary: Last week, more than 100 young researchers from 60 countries were special guests at the summer meeting of the World Economic Forum, held near Tianjin, China's third biggest urban area.

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ScienceScope
Science 3 October 2008: 29.
Full Text »

Random Samples
Science 3 October 2008: 23.
Full Text »

Newsmakers
Science 3 October 2008: 25.
Full Text »

News Focus

NUTRITION SCIENCE: The Peanut Butter Debate
Martin Enserink
Science 3 October 2008: 36-38.

Summary: A new type of ready-to-use food is changing the way severe malnutrition is treated. But questions remain about how far to

push its introduction--and science has a hard time providing the answer.

Full Text » PDF » Podcast Interview »

☐ **NUTRITION SCIENCE: Patents: A Recipe for Problems?**
Martin Enserink
Science 3 October 2008: 38.

Summary: The booming market for so-called ready-to-use therapeutic foods such as Plumpy'nut (see main text) is placing Nutriset, a company in France that together with the French government owns the patent to Plumpy'nut and similar pastes, under scrutiny.

Full Text » PDF »

☐ **PLANETARY SCIENCE: Culture Wars Over How to Find an Ancient Niche for Life on Mars**
Richard A. Kerr
Science 3 October 2008: 39.

Summary: Researchers seeking the next Mars rover landing site disagree about what makes for the most promising possibility: lots of water-altered minerals or familiar water-shaped terrain.

Full Text » PDF »

☐ **EDWARD BUCKLER PROFILE: Romping Through Maize Diversity**
Elizabeth Pennisi
Science 3 October 2008: 40-41.

Summary: A computer whiz turned geneticist borrows tactics from Wal-Mart and cattle breeders to manage what may be the world's largest genetic analysis.

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Letters

Keeping an Eye on the Prize
Roger A. Sedjo
Science 3 October 2008: 43.
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Epigenomics: A Roadmap, But to Where?
Hiten D. Madhani, Nicole J. Francis, Robert E. Kingston, Roger D. Kornberg, Danesh Moazed, Geeta J. Narlikar, Barbara Panning, and Kevin Struhl
Science 3 October 2008: 43-44.
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Protecting Aggregate Genomic Data
Elias A. Zerhouni and Elizabeth G. Nabel
Science 3 October 2008: 44.
Published online 4 September 2008 [DOI: 10.1126/science.1165490] (in *Science* Express Letters)
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Corrections and Clarifications
Science 3 October 2008: 44.

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Closing a Loophole in the FDA Amendments Act
Erick H. Turner, Norwan J. Moaleji, Beth L. Arnold;, Deborah A. Zarin, and Tony Tse
Science 3 October 2008: 44-46.
Full Text » PDF »

Big Payoffs Possible for Small-Molecule Screening
Jeffrey H. Toney
Science 3 October 2008: 46.
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Books *et al.*

☐ **EVOLUTION: A Challenge Standing on Shaky Clay**
Michael Ruse
Science 3 October 2008: 47-48.

Summary: The author holds that for most of Western history, science and religion have "gone hand in hand," and he takes the search for intelligent design in nature to have been an overriding concern of science.

Full Text » PDF »

☐ **PHYSICS: Some Science for Today's Electorate**
Kenneth R. Foster
Science 3 October 2008: 48.

Summary: The author provides a nontechnical primer on the science that must be taken into account when considering some key issues that presidents (and the electorate) must deal with: terrorism; energy; nuclear weapons, power, and wastes; space; and global warming.

Full Text » PDF »

☐ **Books Received**
Science 3 October 2008: 48.
Summary »

Policy Forum

☐ **AGRICULTURE: Sustainable Biofuels Redux**
G. Philip Robertson, Virginia H. Dale, Otto C. Doering, Steven P. Hamburg, Jerry M. Melillo, Michele M. Wander, William J. Parton, Paul R. Adler, Jacob N. Barney, Richard M. Cruse, Clifford S. Duke, Philip M. Fearnside, Ronald F. Follett, Holly K. Gibbs, Jose Goldemberg, David J. Mladenoff, Dennis Ojima, Michael W. Palmer, Andrew Sharpley, Linda Wallace, Kathleen C. Weathers, John A. Wiens, and Wallace W. Wilhelm
Science 3 October 2008: 49-50.

Summary: Science-based policy is essential for guiding an environmentally sustainable approach to cellulosic biofuels.

Full Text » PDF »

Perspectives

☐ ASTRONOMY: The Shining Make-Up of Our Star
Martin Asplund
Science 3 October 2008: 51-52.

Summary: A revision to the chemical composition of the Sun based on models of its outer atmosphere is at odds with our understanding of its inner workings.

Full Text » **PDF »**

☐ ECOLOGY: Bugs' Bugs
May R. Berenbaum and Thomas Eisner
Science 3 October 2008: 52-53.

Summary: Evaluation of the chemical relationship between a beetle and its microbial associates shows that microbial ecology can lead to potential drugs.

Full Text » **PDF »**

☐ ATMOSPHERIC SCIENCE: From Ocean to Stratosphere
Rudolf Deckert and Martin Dameris
Science 3 October 2008: 53-55.

Summary: Rising tropical sea surface temperatures alter atmospheric dynamics at heights of 16 kilometers or more.

Full Text » **PDF »**

☐ CHEMISTRY: A Light Touch Catalyzes Asymmetric Carbon-Carbon Bond Formation
Philippe Renaud and Paul Leong
Science 3 October 2008: 55-56.

Summary: The cooperation between a photoactivated catalyst and an organocatalyst enables a so far elusive stereoselective synthetic transformation.

Full Text » **PDF »**

☐ BIOCHEMISTRY: Not Comparable, But Complementary
Lars Juhl Jensen and Peer Bork
Science 3 October 2008: 56-57.

Summary: New studies increase the number of protein-protein interactions but show little overlap. This is not a bad thing, though.

Full Text » **PDF »**

Review

☐ The Origin and Evolution of Religious Prosociality
Ara Norenzayan and Azim F. Shariff
Science 3 October 2008: 58-62.
Abstract » **Full Text »** **PDF »**

Brevia

☐ Bacterial Protection of Beetle-Fungus Mutualism

Jarrod J. Scott, Dong-Chan Oh, M. Cetin Yuceer, Kier D. Klepzig, Jon Clardy, and Cameron R. Currie
Science 3 October 2008: 63.

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.

Abstract » **Full Text »** **PDF »** **Supporting Online Material »**

Research Article

☐ A Chronology of Paleozoic Sea-Level Changes

Bilal U. Haq and Stephen R. Schutter
Science 3 October 2008: 64-68.

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.

Abstract » **Full Text »** **PDF »** **Supporting Online Material »**

Reports

☐ Ultrafast X-ray Thomson Scattering of Shock-Compressed Matter

Andrea L. Kritcher, Paul Neumayer, John Castor, Tilo Döppner, Roger W. Falcone, Otto L. Landen, Hae Ja Lee, Richard W. Lee, Edward C. Morse, Andrew Ng, Steve Pollaine, Dwight Price, and Siegfried H. Glenzer
Science 3 October 2008: 69-71.

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.

Abstract » **Full Text »** **PDF »** **Supporting Online Material »**

☐ Time Reversal and Negative Refraction

J. B. Pendry
Science 3 October 2008: 71-73.
Published online 28 August 2008 [DOI: 10.1126/science.1162087] (in *Science* Express Reports)

Optically active materials with nonlinear optical properties are predicted to mimic negatively refractive materials but without losses associated with true negative refraction.

Abstract » **Full Text »** **PDF »** **Supporting Online Material »**

☐ Surface-Modified Carbon Nanotubes Catalyze Oxidative Dehydrogenation of *n*-Butane

Jian Zhang, Xi Liu, Raoul Blume, Aihua Zhang, Robert Schlögl, and Dang Sheng Su
Science 3 October 2008: 73-77.

Carbon nanotubes decorated with phosphate groups can catalyze the partial oxidation of alkanes, a process that has normally required complex metal oxides.

Abstract » **Full Text »** **PDF »** **Supporting Online Material »**

Merging Photoredox Catalysis with Organocatalysis: The Direct Asymmetric Alkylation of Aldehydes
David A. Nicewicz and David W. C. MacMillan
Science 3 October 2008: 77-80.
Published online 4 September 2008 [DOI: 10.1126/science.1161976] (in *Science* Express Reports)

When irradiated by light, a ruthenium-organic catalyst creates intermediates with unpaired electrons that undergo otherwise intractable asymmetric reactions.

Abstract » **Full Text »** **PDF »** **Supporting Online Materials »**

Temperature-Induced Hydrophobic-Hydrophilic Transition Observed by Water Adsorption
Hai-Jing Wang, Xue-Kui Xi, Alfred Kleinhammes, and Yue Wu
Science 3 October 2008: 80-83.

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.

Abstract » **Full Text »** **PDF »** **Supporting Online Material »**

Atmospheric CO_2 and Climate on Millennial Time Scales During the Last Glacial Period
Jinho Ahn and Edward J. Brook
Science 3 October 2008: 83-85.
Published online 11 September 2008 [DOI: 10.1126/science.1160832] (in *Science* Express Reports)

A detailed gas record from the Byrd ice core from 90,000 to 20,000 years ago shows that warming episodes tracked high CO_2 levels in Antarctica but lagged by several thousands of years in Greenland.

Abstract » **Full Text »** **PDF »** **Supporting Online Material »**

Rates of Molecular Evolution Are Linked to Life History in Flowering Plants
Stephen A. Smith and Michael J. Donoghue
Science 3 October 2008: 86-89.

A phylogenetic analysis shows that long-lived trees and shrubs have lower rates of molecular evolution than short-lived herbaceous plants.

Abstract » **Full Text »** **PDF »** **Supporting Online Material »**

Chemokine Signaling Controls Endodermal Migration During Zebrafish Gastrulation
Sreelaja Nair and Thomas F. Schilling
Science 3 October 2008: 89-92.
Published online 21 August 2008 [DOI: 10.1126/science.1160038] (in *Science* Express Reports)

During zebrafish gastrulation, chemokines are required for integrin-dependent adhesion of endodermal cells to mesoderm, a role distinct from their action as chemoattractants.

Abstract » **Full Text »** **PDF »** **Supporting Online Material »**

Molecular Architecture of the "Stressosome," a Signal Integration and Transduction Hub
Jon Marles-Wright, Tim Grant, Olivier Delumeau, Gijs van Duinen, Susan J. Firbank, Peter J. Lewis, James W. Murray, Joseph A. Newman, Maureen B. Quin, Paul R. Race, Alexis Rohou, Willem Tichelaar, Marin van Heel, and Richard J. Lewis
Science 3 October 2008: 92-96.

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.

Abstract » Full Text » PDF » Supporting Online Material »

☐ **Internally Generated Reactivation of Single Neurons in Human Hippocampus During Free Recall**

Hagar Gelbard-Sagiv, Roy Mukamel, Michal Harel, Rafael Malach, and Itzhak Fried

Science 3 October 2008: 96-101.
Published online 4 September 2008 [DOI: 10.1126/science.1164685] (in *Science* Express Reports)

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.

Abstract » Full Text » PDF » Supporting Online Material »

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

Etienne Paux, Pierre Sourdille, Jérôme Salse, Cyrille Saintenac, Frédéric Choulet, Philippe Leroy, Abraham Korol, Monika Michalak, Shahryar Kianian, Wolfgang Spielmeyer, Evans Lagudah, Daryl Somers, Andrzej Kilian, Michael Alaux, Sonia Vautrin, Hélène Bergès, Kellye Eversole, Rudi Appels, Jan Safar, Hana Simkova, Jaroslav Dolezel, Michel Bernard, and Catherine Feuillet

Science 3 October 2008: 101-104.

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.

Abstract » Full Text » PDF » Supporting Online Material »

☐ **High-Quality Binary Protein Interaction Map of the Yeast Interactome Network**

Haiyuan Yu, Pascal Braun, Muhammed A. Yildirim, Irma Lemmens, Kavitha Venkatesan, Julie Sahalie, Tomoko Hirozane-Kishikawa, Fana Gebreab, Na Li, Nicolas Simonis, Tong Hao, Jean-François Rual, Amélie Dricot, Alexei Vazquez, Ryan R. Murray, Christophe Simon, Leah Tardivo, Stanley Tam, Nenad Svrzikapa, Changyu Fan, Anne-Sophie de Smet, Adriana Motyl, Michael E. Hudson, Juyong Park, Xiaofeng Xin, Michael E. Cusick, Troy Moore, Charlie Boone, Michael Snyder, Frederick P. Roth, Albert-László Barabási, Jan Tavernier, David E. Hill, and Marc Vidal

Science 3 October 2008: 104-110.
Published online 21 August 2008 [DOI: 10.1126/science.1158684] (in *Science* Express Reports)

Comparison of existing methods for mapping protein-protein interactions in yeast cells shows that the high-throughput approaches are complementary to one another.

Abstract » Full Text » PDF » Supporting Online Material »

☐ **Ceramide Biogenesis Is Required for Radiation-Induced Apoptosis in the Germ Line of *C. elegans***

Xinzhu Deng, Xianglei Yin, Richard Allan, Diane D. Lu, Carine W. Maurer, Adriana Haimovitz-Friedman, Zvi Fuks, Shai Shaham, and Richard Kolesnick

Science 3 October 2008: 110-115.

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.

Abstract » Full Text » PDF » Supporting Online Material »

☐ **Lacking Control Increases Illusory Pattern Perception**

Jennifer A. Whitson and Adam D. Galinsky

Science 3 October 2008: 115-117.

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.

Abstract » Full Text » PDF » Supporting Online Material » Podcast Interview »

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