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This Week in *Science*

Editor summaries of this week's papers.
Science 21 May 2010: 949.
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EDITORIAL:

Banning Nuclear Tests
Pierce S. Corden
Science 21 May 2010: 953.
[Summary »](#) [Full Text »](#) [PDF »](#)

Editors' Choice

Highlights of the recent literature.
Science 21 May 2010: 955.
[Full Text »](#)

Science Podcast

Science 21 May 2010: 1047.
The show includes bacterial cells controlled by a synthetic genome, instantaneous Brownian velocity, the evolution of language, and more.
[Summary »](#) [Full Text »](#) [Transcript »](#)

New Products

Science 21 May 2010: 1047.
A weekly roundup of information on newly offered instrumentation, apparatus, and laboratory materials of potential interest to researchers.
[Summary »](#) [Full Text »](#) [PDF »](#)

News of the Week

GENOMICS

Synthetic Genome Brings New Life to Bacterium
Elizabeth Pennisi
Science 21 May 2010: 958-959.
In this week's *Science Express*, researchers [describe](#) the stepwise creation of a bacterial chromosome and the successful transfer of it into a bacterium, where it replaced the native DNA. Powered by the synthetic genome, that microbial cell began replicating and making a new set of proteins.
[Summary »](#) [Full Text »](#) [PDF »](#)

UNITED KINGDOM

Will Britain's Coalition Wield the Funding Ax?
Daniel Clery
Science 21 May 2010: 959.
After 13 years of a Labour administration that greatly improved the lot of scientists, and with the government deficit at record levels, there is grave concern that research funding will be hit under Britain's new coalition government.
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SCIENCENOW.ORG

From *Science's* Online Daily News Site
Science 21 May 2010: 960.

ScienceNOW reported this week that people tend to be happier, less anxious, and less worried after age 50; urinary proteins secreted by cats, snakes, and a variety of other predators make mice run scared; vision cells help set the body's clock; and brain cells thought to underlie our ability to understand one another work just fine in people with autism spectrum disorders; among other stories.

[Summary](#) » [Full Text](#) » [PDF](#) »

 BIOMEDICAL RESEARCH

Former NIH Director Varmus to Head Cancer Institute
Jocelyn Kaiser
Science 21 May 2010: 960-961.

President Barack Obama announced on 17 May that he plans to appoint Nobel Prize–winning molecular biologist Harold Varmus director of the \$5.1 billion National Cancer Institute.

[Summary](#) » [Full Text](#) » [PDF](#) »

 U.S. SCIENCE POLICY

House Blocks Bill to Boost Research Spending
Jeffrey Mervis
Science 21 May 2010: 960-961.

The U.S. House of Representatives last week rejected legislation aimed at boosting research and education spending at three federal agencies due to concerns about the trillion-dollar federal deficit and the National Science Foundation's handling of employees who trafficked in electronic pornography at work.

[Summary](#) » [Full Text](#) » [PDF](#) »

 SCIENCEINSIDER

From the *Science* Policy Blog
Science 21 May 2010: 961.

ScienceInsider reported this week on a pretrial hearing before a federal judge in Tennessee that was the most formal legal test yet for the use of lie-detection technology based on functional magnetic resonance imaging of brain activity, among other stories.

[Summary](#) » [Full Text](#) » [PDF](#) »

 GULF OIL DISASTER

Five Questions on the Spill
Richard A. Kerr, Eli Kintisch, Lauren Schenkman, and Erik Stokstad
Science 21 May 2010: 962-963.

Sizing up the weeks-long spill in the Gulf of Mexico and its impacts is proving a challenge for marine and coastal scientists. Scientists will be trying to answer five key questions over the coming months and years.

[Summary](#) » [Full Text](#) » [PDF](#) »

Random Samples

Science 21 May 2010: 957.
[Full Text](#) »

News Focus

 BIOMEDICAL RESEARCH FUNDING

Battle of the Titans
Colin Macilwain
Science 21 May 2010: 964-967.

For the Howard Hughes Medical Institute and the Wellcome Trust, a rough decade on the stock market makes for straitened times.

[Summary](#) » [Full Text](#) » [PDF](#) » [Timeline](#) »

 EVOLUTION OF LANGUAGE

Animal Communication Helps Reveal Roots of Language
Michael Balter
Science 21 May 2010: 969-971.

An interdisciplinary gathering marks a turning point for a field historically richer in talk than data, but which now is increasingly embracing studies of animals.

[Summary](#) » [Full Text](#) » [PDF](#) » [Podcast Interview](#) »

Letters

Cretaceous Extinctions: Multiple Causes

J. David Archibald, W. A. Clemens, Kevin Padian, Timothy Rowe, Norman Macleod, Paul M. Barrett, Andrew Gale, Pat Holroyd, Hans-Dieter Sues, Nan Crystal Arens, John R. Horner, Gregory P. Wilson, Mark B. Goodwin, Christopher A. Brochu, Donald L. Lofgren, Stuart H. Hurlbert, Joseph H. Hartman, David A. Eberth, Paul B. Wignall, Philip J. Currie, Anne Weil, Guntupalli V. R. Prasad, Lowell Dingus, Vincent Courtillot, Angela Milner, Andrew Milner, Sunil Bajpai, David J. Ward, and Ashok Sahni
Science 21 May 2010: 973.

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Cretaceous Extinctions: The Volcanic Hypothesis

Vincent Courtillot and Frédéric Fluteau
Science 21 May 2010: 973-974.

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Cretaceous Extinctions: Evidence Overlooked

Gerta Keller, Thierry Adatte, Alfonso Pardo, Sunil Bajpai, Ashu Khosla, and Bandana Samant
Science 21 May 2010: 974-975.

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Corrections and Clarifications

Science 21 May 2010: 974.
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Response—Cretaceous Extinctions

Peter Schulte, Laia Alegret, Ignacio Arenillas, José A. Arz, Penny J. Barton, Paul R. Bown, Timothy J. Bralower, Gail L. Christeson, Philippe Claeys, Charles S. Cockell, Gareth S. Collins, Alexander Deutsch, Tamara J. Goldin, Kazuhisa Goto, José M. Grajales-Nishimura, Richard A. F. Grieve, Sean P.

FEATURED JOBS

Featured Jobs

1. [POST DOCTORAL POSITIONS AT YALE IN DEVELOPM...](#)

Yale University

New Haven-CT-United States

2. [Assistant Research Biologist and Director](#)

Archbold Biological Station

Lake Placid-FL-United States

3. [Assistant Professor, Pharmacology](#)

St. George's University

True Blue-St.

S. Gulick, Kirk R. Johnson, Wolfgang Kiessling, Christian Koeberl, David A. Kring, Kenneth G. Macleod, Takafumi Matsui, Jay Melosh, Alessandro Montanari, Joanna V. Morgan, Clive R. Neal, Richard D. Norris, Elisabetta Pierazzo, Greg Ravizza, Mario Rebolledo-Vieyra, Wolf Uwe Reimold, Eric Robin, Tobias Salge, Robert P. Speijer, Arthur R. Sweet, Jaime Urrutia-Fucugauchi, Vivi Vajda, Michael T. Whalen, and Pi S. Willumsen
Science 21 May 2010: 975-976.
[Full Text »](#) [PDF »](#)

Honing the Test-and-Treat HIV Strategy

Timothy D. Mastro and Myron S. Cohen
Science 21 May 2010: 976.
[Full Text »](#) [PDF »](#)

Books et al.

SOCIAL SCIENCES

Selfish Games
 David Krakauer
Science 21 May 2010: 977-978.

Sigmund offers a fairly rigorous introduction to game-theory approaches to "interactions among individuals guided by self-interest and caught in social traps."

[Summary »](#) [Full Text »](#) [PDF »](#)

Books Received

Science 21 May 2010: 977.

A [listing of books received](#) at *Science* during the week ended 14 May 2010.

[Summary »](#)

ECONOMICS

Identity Matters
 Robert Sugden
Science 21 May 2010: 978.

Akerlof and Kranton argue for the importance of people's sense of identity (encompassing what is proper and what is forbidden) in understanding why individuals who face the same economic circumstances make different choices.

[Summary »](#) [Full Text »](#) [PDF »](#)

Policy Forum

SCIENCE AND SOCIETY

The Smart Electricity Grid and Scientific Research

Jan Beyea
Science 21 May 2010: 979-980.

Researchers have an interest in access to, and preservation of, data that will soon be collected by the smart electricity grid.

[Summary »](#) [Full Text »](#) [PDF »](#)

Perspectives

MICROBIOLOGY

Salmonella's Safety Catch
 R. John Collier
Science 21 May 2010: 981-982.

Salmonella determine when to secrete proteins into infected host cells by sensing the pH of their environment.

[Summary »](#) [Full Text »](#) [PDF »](#)

GEOPHYSICS

The Enigmatic Inner Core
 Bruce A. Buffett
Science 21 May 2010: 982-983.

Observations and models are beginning to explain the bewildering properties of Earth's solid inner core.

[Summary »](#) [Full Text »](#) [PDF »](#)

CELL SIGNALING

Signaling Through Cooperation
 Emmanuel D. Levy, Christian R. Landry, and Stephen W. Michnick
Science 21 May 2010: 983-984.

Protein kinases and phosphatases may form a collaborative network of interactions to mediate cellular responses.

[Summary »](#) [Full Text »](#) [PDF »](#)

CHEMISTRY

Following the Motions of Water Molecules in Aqueous Solutions
 James L. Skinner
Science 21 May 2010: 985-986.

Ultrafast spectroscopy is revealing details of the rotational dynamics of water molecules in salt solutions.

[Summary »](#) [Full Text »](#) [PDF »](#)

MATERIALS SCIENCE

Weight Loss with Magnesium Alloys
 Tresa M. Pollock
Science 21 May 2010: 986-987.

New design and processing approaches for magnesium-based alloys are offering a variety of opportunities in lightweight and energy-efficient applications.

[Summary »](#) [Full Text »](#) [PDF »](#)

BIOCHEMISTRY

Stochastic Emergence of Groupthink
 Arthur Prindle and Jeff Hasty
Science 21 May 2010: 987-988.

Oscillations in the synthesis and release of a chemical signal synchronize the behavioral response of a cell population.

[Summary »](#) [Full Text »](#) [PDF »](#)

Review

- Primordial Gravitational Waves and Cosmology**
Lawrence M. Krauss, Scott Dodelson, and Stephan Meyer
Science 21 May 2010: 989-992.
[Abstract »](#) [Full Text »](#) [PDF »](#) [Supporting Online Material »](#)

Brevia

- Adaptive Evolution of an sRNA That Controls *Myxococcus* Development**
Yuen-Tsu N. Yu, Xi Yuan, and Gregory J. Velicer
Science 21 May 2010: 993.
Mutation of a small noncoding RNA drives adaptive evolution in a social bacterium.
[Abstract »](#) [Full Text »](#) [PDF »](#) [Supporting Online Material »](#)

Research Article

- A Catalog of Reference Genomes from the Human Microbiome**
The Human Microbiome Jumpstart Reference Strains Consortium
Science 21 May 2010: 994-999.
Standardized protocols and methods are being established for large-scale sequencing of the microorganisms living on humans.
[Abstract »](#) [Full Text »](#) [PDF »](#) [Supporting Online Material »](#)

Reports

- Observation of Plasmarons in Quasi-Freestanding Doped Graphene**
Aaron Bostwick, Florian Speck, Thomas Seyller, Karsten Horn, Marco Polini, Reza Asgari, Allan H. MacDonald, and Eli Rotenberg
Science 21 May 2010: 999-1002.
Doping of graphene introduces two new crossing points of the conduction and valence-electron bands.
[Abstract »](#) [Full Text »](#) [PDF »](#) [Supporting Online Material »](#)
- Large Angular Jump Mechanism Observed for Hydrogen Bond Exchange in Aqueous Perchlorate Solution**
Minbiao Ji, Michael Odellius, and K. J. Gaffney
Science 21 May 2010: 1003-1005.
Water molecules shift orientation between dissolved ions and the surrounding liquid by taking large, sudden steps.
[Abstract »](#) [Full Text »](#) [PDF »](#) [Supporting Online Material »](#)
- Cooperativity in Ion Hydration**
K. J. Tielrooij, N. Garcia-Araez, M. Bonn, and H. J. Bakker
Science 21 May 2010: 1006-1009.
When salts dissolve in water, the separated cations and anions can still collectively impact the liquid structure.
[Abstract »](#) [Full Text »](#) [PDF »](#) [Supporting Online Material »](#)
- Self-Assembly of Janus Dendrimers into Uniform Dendrimersomes and Other Complex Architectures**
Virgil Percec, Daniela A. Wilson, Pawaret Leowanawat, Christopher J. Wilson, Andrew D. Hughes, Mark S. Kaucher, Daniel A. Hammer, Dalia H. Levine, Anthony J. Kim, Frank S. Bates, Kevin P. Davis, Timothy P. Lodge, Michael L. Klein, Russell H. DeVane, Emad Aqad, Brad M. Rosen, Andreea O. Argintaru, Monika J. Sienkowska, Kari Rissanen, Sami Nummelin, and Jarmo Ropponen
Science 21 May 2010: 1009-1014.
Amphiphilic, spherically shaped polymers self-assemble into larger hollow complexes that could be used for drug delivery.
[Abstract »](#) [Full Text »](#) [PDF »](#) [Supporting Online Material »](#)
- Lopsided Growth of Earth's Inner Core**
Marc Monnereau, Marie Calvet, Ludovic Margerin, and Annie Souriau
Science 21 May 2010: 1014-1017.
Published online 15 April 2010 [DOI: 10.1126/science.1186212] (in *Science Express Reports*)
The asymmetry of the inner core is explained by iron crystallization on one side and melting on the other.
[Abstract »](#) [Full Text »](#) [PDF »](#) [Supporting Online Material »](#)
- Regional Variation of Inner Core Anisotropy from Seismic Normal Mode Observations**
Arwen Deuss, Jessica C. E. Irving, and John H. Woodhouse
Science 21 May 2010: 1018-1020.
Published online 15 April 2010 [DOI: 10.1126/science.1188596] (in *Science Express Reports*)
Seismic data from the inner core reveal that anisotropic regions overlap with gravitational anomalies.
[Abstract »](#) [Full Text »](#) [PDF »](#) [Supporting Online Material »](#)
- The Onset of Collective Behavior in Social Amoebae**
Thomas Gregor, Koichi Fujimoto, Noritaka Masaki, and Satoshi Sawai
Science 21 May 2010: 1021-1025.
Published online 22 April 2010 [DOI: 10.1126/science.1183415] (in *Science Express Reports*)
Stochastic pulsing of individual cells plays a critical role in initiating cyclic adenosine monophosphate pulses.
[Abstract »](#) [Full Text »](#) [PDF »](#) [Supporting Online Material »](#)
- Structural Insights into the Assembly and Function of the SAGA Deubiquitinating Module**
Nadine L. Samara, Ajit B. Datta, Christopher E. Berndsen, Xiangbin Zhang, Tingting Yao, Robert E. Cohen, and Cynthia Wolberger
Science 21 May 2010: 1025-1029.
Published online 15 April 2010 [DOI: 10.1126/science.1190049] (in *Science Express Reports*)
Structures give insight into how a regulator of eukaryotic gene expression achieves one of its chromatin-modifying functions.
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- Network Diversity and Economic Development**
Nathan Eagle, Michael Macy, and Rob Claxton
Science 21 May 2010: 1029-1031.
Social diversity is associated with economic development.
[Abstract »](#) [Full Text »](#) [PDF »](#) [Supporting Online Material »](#)

- Coadministration of a Tumor-Penetrating Peptide Enhances the Efficacy of Cancer Drugs**
Kazuki N. Sugahara, Tambat Teesalu, Priya Prakash Karmali, Venkata Ramana Kotamraju, Lilach Agemy, Daniel R. Greenwald, and Erkki Ruoslahti
Science 21 May 2010: 1031-1035.
Published online 8 April 2010 [DOI: 10.1126/science.1183057] (in *Science Express Reports*)
Anticancer drugs are more effective in mice when they are injected with a peptide that helps the drugs penetrate the tumor.
[Abstract »](#) [Full Text »](#) [PDF »](#) [Supporting Online Material »](#)
- Five-Vertebrate ChIP-seq Reveals the Evolutionary Dynamics of Transcription Factor Binding**
Dominic Schmidt, Michael D. Wilson, Benoit Ballester, Petra C. Schwalie, Gordon D. Brown, Aileen Marshall, Claudia Kutter, Stephen Watt, Celia P. Martinez-Jimenez, Sarah Mackay, Iannis Talianidis, Paul Flicek, and Duncan T. Odom
Science 21 May 2010: 1036-1040.
Published online 8 April 2010 [DOI: 10.1126/science.1186176] (in *Science Express Reports*)
Binding of two liver-specific transcription factors in several vertebrate species reveals complex regulatory evolution.
[Abstract »](#) [Full Text »](#) [PDF »](#) [Supporting Online Material »](#)
- pH Sensing by Intracellular *Salmonella* Induces Effector Translocation**
Xiu-Jun Yu, Kieran McGourty, Mei Liu, Kate E. Unsworth, and David W. Holden
Science 21 May 2010: 1040-1043.
Published online 15 April 2010 [DOI: 10.1126/science.1189000] (in *Science Express Reports*)
Intravacuolar *Salmonella* sense host cytosolic pH, resulting in degradation of a regulatory complex and effector translocation.
[Abstract »](#) [Full Text »](#) [PDF »](#) [Supporting Online Material »](#)
- A Global Protein Kinase and Phosphatase Interaction Network in Yeast**
Ashton Breitkreutz, Hyungwon Choi, Jeffrey R. Sharom, Lorrie Boucher, Victor Neduva, Brett Larsen, Zhen-Yuan Lin, Bobby-Joe Breitkreutz, Chris Stark, Guomin Liu, Jessica Ahn, Danielle Dewar-Darch, Teresa Reguly, Xiaojing Tang, Ricardo Almeida, Zhaohui Steve Qin, Tony Pawson, Anne-Claude Gingras, Alexey I. Nesvizhskii, and Mike Tyers
Science 21 May 2010: 1043-1046.
Phosphorylation reactions in budding yeast reveal the regulatory architecture of a fundamental cellular control system.
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