EDITORIAL
1265 The Next Campaign
Leon M. Lederman and Shirley M. Malcom

NEWS OF THE WEEK
1274 Amid the Gloom, Researchers Prepare for a Boom in Funding
Budgets in Brief
>> Science Podcast
1276 Loss of Carbon Observatory Highlights Gaps in Data
1277 Study Questions Value of School Software for Students
1278 Author of Iraqi Deaths Study Sanctioned
1279 From Protest to Power: An Advocacy Group Turns 40
1280 Retractions Put Spotlight on China’s Part-Time Professor System
1281 From the Science Policy Blog

NEWS FOCUS
1282 The Danger Within
1284 Nigel Franks: Watching as Ants Go Marching—and Deciding—One by One
ORIGINS
1286 On the Origin of Photosynthesis

LETTERS
1288 For Science, No Escape from Politics
T. Clair
Research Rankings: Does Size Matter?
A. Fitter
Response
J. Travis
Certificates Should Be Retired
J. A. Hermos and A. Spiro III
Certificates Should Be Strengthened
P. P. Gunn and S. D. Joiner
Response
L. M. Beskow et al.

CORRECTIONS AND CLARIFICATIONS
1290

BOOKS ET AL.
1291 Sand
M. Welland, reviewed by R. Holman
1292 The Art and Politics of Science
H. Varmus, reviewed by T. Pederson

POLICY FORUM
1293 Responding to Possible Plagiarism
T. C. Long et al.

PERSPECTIVES
1295 More AMPAR Garnish
C. Tigaret and D. Choquet
>> Research Article p. 1313
1296 Eyes on the Prize?
D. K. Levine
>> Report p. 1335
1297 Beyond the Data Deluge
G. Bell et al.
>> Science Podcast
1299 Pinpointing Gravity
N. D’Amico
>> Report p. 1327
1300 Warming Up Food Webs
J. M. Tylianakis
>> Report p. 1347
1301 Anti-Rust Antitrust
D. J. Kliebenstein and H. C. Rowe
>> Reports pp. 1357 and 1360
1302 Infrastructure Design Issues in Disaster-Prone Regions
S. D. Guikema

REVIEW
1304 The Challenge of Finding a Cure for HIV Infection
D. D. Richman et al.

CONTENTS continued >>

COVER
Gray and black wolf pups howling in Wolf Park in Battle Ground, Indiana. In North American gray wolves (Canis lupus), a mutation that alters coat color from brownish-gray to black, which derives from past hybridization with domestic dogs, is increasing in forested habitats because of positive selection. See page 1339.

Image: Monty Sloan
BREVIA

1308 Extremely High Mutation Rate of a Hammerhead Viroid
S. Gago et al.
Viroids, the smallest RNA replicators in plants, have the highest error rates yet recorded.

RESEARCH ARTICLES

1309 Dynamic Order-Disorder in Atomistic Models of Structural Glass Formers
L. O. Hedges et al.
The liquid-to-glass transition of a simple mixture is controlled by parameters that drive the system away from equilibrium.

1313 Functional Proteomics Identify Cornichon Proteins as Auxiliary Subunits of AMPA Receptors
J. Schwenk et al.
A distinctive family of proteins involved in the assembly of the most common excitatory brain receptor has been discovered.

REPORTS

1319 Brightly Fluorescent Single-Walled Carbon Nanotubes via an Oxygen-Excluding Surfactant Organization
S.-Y. Ju et al.
Wrapping a molecule around individual single-walled carbon nanotubes enhances fluorescence.

1323 Probing the Angular Momentum Character of the Valence Orbitals of Free Sodium Nanoclusters
C. Bartels et al.
Photoelectron imaging uncovers electronic angular distributions in metallic nanoclusters.

1327 Implications of a VLBI Distance to the Double Pulsar J0737-3039A/B
A. T. Deller et al.
Tests of gravity theory that use this double pulsar, now recognized as being more distant, will be more precise.

1329 Phase-Sensitive Observation of a Spin-Orbital Mott State in Sr2IrO4
B. J. Kim et al.
Resonant x-ray scattering was used to probe and determine the magnetic structure of this transition metal oxide.

1332 The Earliest Horse Harnessing and Milking
A. K. Outram et al.
The Botai Culture on the Eurasian steppe apparently domesticated horses about 5500 years ago.

1335 Promoting Intellectual Discovery: Patents Versus Markets
D. Meloso et al.
A laboratory experiment shows that prizes such as patents are not the only ways to provide incentives for discovery.

1339 Molecular and Evolutionary History of Melanism in North American Gray Wolves
T. M. Anderson et al.
Black coat color in wolves derives from a mutation that originated in domestic dogs.

1344 Drought Sensitivity of the Amazon Rainforest
O. L. Phillips et al.
Widespread surveys show that the Amazon forest lost extensive biomass carbon as a result of the severe 2005 drought.

1347 Species Response to Environmental Change: Impacts of Food Web Interactions and Evolution
J. P. Harmon et al.
The resilience of pea aphids to heat stress depends on interactions with predators and bacterial endosymbionts.

1350 Sensing Chromosome Bi-Orientation by Spatial Separation of Aurora B Kinase from Kinetochoore Substrates
D. Liu et al.
The mechanism for sensing tension across chromosome pairs before mitotic separation relies on the distance between enzyme and substrate.

1354 Geometric Cue for Protein Localization in a Bacterium
K. S. Ramanurthi et al.
Membrane curvature controls the localization of a small peripheral membrane protein during bacterial spore formation.

1357 A Kinase-START Gene Confers Temperature-Dependent Resistance to Wheat Stripe Rust
D. Fu et al.

1360 A Putative ABC Transporter Confers Durable Resistance to Multiple Fungal Pathogens in Wheat
S. G. Krattinger et al.
Several specific genes in wheat confer resistance to common fungal diseases.

CONTENTS continued >>
RESEARCH ARTICLE: Odor Coding by a Mammalian Receptor Repertoire
H. Saito et al.
Identification of mammalian olfactory receptor agonists enables development of a predictive model of receptor activation.

SCIENCEEXPRESS
www.sciencexpress.org
Leucine-Rich Repeat Protein Complex Activates Mosquito Complement in Defense Against Plasmodium Parasites
M. Pavolones et al.
A family of molecules, apparently unique to mosquitoes, binds to invading parasites and initiates innate immune responses.

Rare Variants ofIFIH1, a Gene Implicated in Antiviral Responses, Protect Against Type 1 Diabetes
S. Nejentsev et al.
Deep resequencing revealed rare alleles that were significantly associated with protection from diabetes.

Exomic Sequencing IdentifiesPALB2 as a Pancreatic Cancer Susceptibility Gene
S. Jones et al.
Mutations in a gene previously implicated in breast cancer are a contributing factor in hereditary pancreatic cancer.

CD24 and Siglec-10 Selectively Repress Tissue Damage–Induced Immune Responses
G.-Y. Chen et al.
A signaling pathway involving an immune protein protects cells against the potentially fatal immune response induced by tissue damage.

A Better Way to Make Embryonic-Like Stem Cells
"Jumping genes" may improve efficiency and safety of creating therapeutic cells.

Why Nicotine Prefers Brains Over Brawn
Single amino acid change helps explain the first step in smoking addiction.

Drink Up, Energy Hogs
Bottled water guzzles up to 2000 times more energy than tap water.

SCIENCECAREERS
www.sciencecareers.org
Free Career Resources for Scientists
Learn about the latest in research funding, scholarships, fellowships, and internships.

SCIENCE PODCAST
www.sciencemag.org/multimedia/podcast
Free Weekly Show
Download the 6 March Science Podcast to hear about promoting intellectual discovery through markets, the increasing demands of data-intensive science, news about the U.S. science budget, and more.

SCIENCENOW
www.sciencenow.org
Highlights From Our Daily News Coverage
Can You Be Too Ready for Research Independence?
S. Carpenter
Fewer faculty jobs are tenure-track in academic medical research.

Science Policy News and Analysis
March 2009 Funding News
S. Fernandez
The National Institutes of Health’s K99/R00 award is a great success—maybe too great a success.

SCIENCEONLINE
www.sciencemag.org/dailynews/05/mar/doc_05mar09 adjusts.html
1259

SCIENCE SIGNALING
Protein interactomes.

GLOSSARY

PODCAST
J. Schlessinger and A. M. VanHook
Autophosphorylation events that control the activity of the FGF receptor are kinetically controlled and disrupted by a mutation associated with glioblastoma.

CREDITS: (NOW) SAMI SARKIS/PHOTOGRAPHER’S CHOICE/GETTY IMAGES; (SCIENCE SIGNALING) EMMANUEL D. LEVY/UNIVERSITÉ DE MONTRÉAL

SCIENCE (ISSN 0036-8075) is published weekly on Friday, except the last week in December, by the American Association for the Advancement of Science, 1200 New York Avenue, NW, Washington, DC 20005. Periodicals Mail postage (publication No. 484460) paid at Washington, DC, and additional mailing offices. Copyright © 2009 by the American Association for the Advancement of Science. The title SCIENCE is a registered trademark of the AAAS. Domestic individual membership and subscription (US issued): ISSN 1344 (174 allocated to subscription). Domestic institutional subscription (US issued): 1815. Foreign postage extra: Mexico, Caribbean (surface mail) 555; other countries (air assist delivery) 585. First class, airmail, student, and emeritus rates on request. Canadian rates with GST available upon request; GST #1254 88122. Publication Mail Agreement Number 1069624. Printed in the U.S.A. Change of address: Allow 4 weeks, giving old and new addresses and 8-digit account number. Postmaster: Send change of address to AAAS, P.O. Box 96378, Washington, DC 20090–6178. Single-copy sales: $10.00 issue, $15.00 back issue prepaid includes first-class postage, bulk rates on request. Authorization to photostat material for internal or personal use not exceeding 100% of the original is granted by AAAS to libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service, provided that $20.00 per article is paid directly to CCC, 222 Rosewood Drive, Danvers, MA 01923. The identification code for Science is 0036–8075. Science is indexed in the Reader’s Guide to Periodical Literature and in several specialized indexes.