EDITORIAL
643  Beyond Climate Science
Eric J. Barron

NEWS OF THE WEEK
650  Hwang Convicted But Dodges Jail; Stem Cell Research Has Moved On
651  DOE Gives $151 Million to ‘Out-of-Box’ Research
652  Beyond Thailand: Making Sense of a Qualified AIDS Vaccine ‘Success’
653  From Science’s Online Daily News Site
654  Study Finds Science Pipeline Strong, But Losing Top Students
654  Obama’s Science Advisers Look at Reform of Schools
655  Signs of Early Homo sapiens in China?
655  From the Science Policy Blog

NEWS FOCUS
656  2009 Nobels: Break or Breakthrough for Women?
659  Glacier Man
662  Hot, Flat, Crowded—and Preparing for the Worst

LETTERS
664  Too Sanitary for Vultures
J. A. Donázar et al.
Underestimating Energy
J. Kunz et al.
Nutrient Imbalances: Follow the Waste
T. H. Deluca
Nutrient Imbalances: Pollution Remains
J. Albiac
Response
P. M. Vitousek et al.

BOOKS ET AL.
668  How We Live and Why We Die
L. Wolpert
669  The Calculus of Friendship
S. Strogatz, reviewed by B. Finegold

POLICY FORUM
670  The Electronics Revolution: From E-Wonderland to E-Wasteland
O. A. Ogunseitan et al.

PERSPECTIVES
672  Clean the Air, Heat the Planet?
A. Arneth et al.
>> Perspective p. 674; Report p. 716
673  The Basics of Zinc Activation
J. Marek
>> Report p. 706
674  Clean Air for Megacities
D. D. Parrish and T. Zhu
>> Perspective p. 672; Report p. 716
676  An Ancient Gauge for Iron
T. A. Rouault
>> Reports pp. 718 and 722
677  Leaps in Translational Elongation
A. Liljas
>> Research Articles pp. 688 and 694
678  Foundations of Societal Inequality
D. Acemoglu and J. Robinson
>> Research Article p. 682

BREVIA
681  10-GHz Self-Referenced Optical Frequency Comb
A. Bartels et al.
A laser that emits lines every 10 gigahertz can be used for frequency calibration in spectroscopy.

CONTENTS continued >>
RESEARCH ARTICLES

682 Intergenerational Wealth Transmission and the Dynamics of Inequality in Small-Scale Societies
M. Borgerhoff Mulder et al.
Some types of wealth are strongly inherited and, hence, contribute to long-term economic inequality.

>> Perspective p. 678; Science Podcast

688 The Crystal Structure of the Ribosome Bound to EF-Tu and Aminoacyl-tRNA
T. M. Schmeing et al.

694 The Structure of the Ribosome with Elongation Factor G Trapped in the Posttranslational State
Y.-G. Gao et al.
Crystal structures of the ribosome bound to elongation factors provide insights into translocation and decoding.

REPORTS

699 High-Temperature Superconductivity in a Single Copper-Oxygen Plane
G. Logvenov et al.
Interfaces of oxide metals and insulators confine a superconducting state to one copper oxide plane.

702 Reconstruction of Molecular Orbital Densities from Photoemission Data
P. Puschnig et al.
Maps of photoelectron momentum can reveal the orbital geometries of aromatic molecules adsorbed on surfaces.

706 Synergic Sedation of Sensitive Anions: Alkali-Mediated Zincation of Cyclic Ethers and Ethene
A. R. Kennedy et al.
Tandem coordination by zinc and an alkali metal increases the reactivity of carbon-hydrogen bonds of organic molecules.

708 4D Nanoscale Diffraction Observed by Convergent-Beam Ultrafast Electron Microscopy
A. Yurtsever and A. H. Zewail
Focusing an ultrashort electron pulse enables dynamic structural probing of materials that have nanoscale heterogeneity.

713 A Late Archean Sulfidic Sea Stimulated by Early Oxidative Weathering of the Continents
C. T. Reinhard et al.
Before Earth’s atmosphere became oxidizing, the oceans may have been sulfide-rich while receiving periodic pulses of iron.

716 Improved Attribution of Climate Forcing to Emissions
D. T. Shindell et al.
Chemical interactions between atmospheric gases and aerosols modify the global warming impacts of emissions.

718 Control of Iron Homeostasis by an Iron-Regulated Ubiquitin Ligase
A. A. Vashisht et al.

722 An E3 Ligase Possessing an Iron-Responsive Hemerythrin Domain Is a Regulator of Iron Homeostasis
A. A. Salahudeen et al.
A vertebrate hemerythrin domain in an E3 ubiquitin ligase complex senses and regulates cellular iron levels.

725 Quantifying the Impact of Immune Escape on Transmission Dynamics of Influenza
A. W. Park et al.
Modeling equine influenza reveals how epidemics originate in amino acid evolution to escape immunity.

729 The Transmissibility and Control of Pandemic Influenza A (H1N1) Virus
Y. Yang et al.
A detailed picture of the pandemic potential of swine-origin influenza offers guidance for effective mitigation strategies.

734 Hemagglutinin Receptor Binding Avidity Drives Influenza A Virus Antigenic Drift
S. E. Hensley et al.
Viruses escape antibody responses by changing surface protein structures to increase the strength of binding to host cells.

CONTENTS continued >>
Structure of Monomeric Yeast and Mammalian Sec61 Complexes Interacting with the Translating Ribosome

T. Becker et al.

A single copy of a protein-conducting channel molecule provides a conduit for polypeptide translocation across membranes.

10.1126/science.1177662

Induced Chromosomal Proximity and Gene Fusions in Prostate Cancer

R.-S. Mani et al.

Androgen signaling facilitates the formation of an oncogenic fusion gene in prostate cancer cells.

10.1126/science.1178124

Pandemic H1N1 and the 2009 Hajj

S. H. Ebrahim et al.

10.1126/science.1183210

>> Science Podcast

SCIENCE NOW

www.sciencenow.org

Highlights From Our Daily News Coverage

Gene Therapy Helps Blind Children See

Success builds on preliminary work in adults.

Naked Mole Rat Wins the War on Cancer

Novel mechanism could point to new therapies for humans.

Cutting Carbon Emissions, One Household at a Time

Researchers find that energy-efficiency measures also curb carbon footprints.

SCIENCE SIGNALING

www.sciencesignaling.org

The Signal Transduction Knowledge Environment

RESEARCH ARTICLE: An Atypical CNG Channel Activated by a Single cGMP Molecule Controls Sperm Chemotaxis

W. Rönik et al.

The ability of a single molecule of cGMP to activate the K+-selective cyclic nucleotide-gated channel allows sea urchin sperm to find an egg.

RESEARCH ARTICLE: Increased MMK4 Abundance with Replicative Senescence Is Linked to the Joint Reduction of Multiple microRNAs

B. S. Marasa et al.

PODCAST

M. Gorospe and A. M. VanHook

Several microRNAs jointly regulate the abundance of the kinase MMK4 during replicative senescence.

PERSPECTIVE: Confronting Morphogen Gradients—How Important Are They for Growth?

F. Hamaratoglu et al.

A graded distribution of Wingless is not required for growth of the fly wing.

PERSPECTIVE: P-REX2 Driving Tumorigenesis by PTEN Inhibition

N. R. Leslie

The guanine exchange factor P-REX2 limits the lipid phosphatase activity of PTEN and is a potential oncogene.

TEACHING RESOURCE: To Co-Author or Not to Co-Author—How to Write, Publish, and Negotiate Issues of Authorship with Undergraduate Research Students

R. L. Burks and M. M. Chumchal

The rewards associated with publishing with undergraduate students outweigh the challenges.

SCIENCE CAREERS

www.sciencemag.org/career_magazine

Free Career Resources for Scientists

SPECIAL WOMEN-WITH-FAMILIES ISSUE

Returning to Science

S. Webb

With the right support, it is possible to succeed in science after a family-related hiatus.

A Life Lived Backward

A. Saini

Patricia Alireza already had grandchildren when her physics career began to bloom.

SCIENCE TRANSLATIONAL MEDICINE

www.sciencetranslationalmedicine.org

Integrating Medicine and Science

COMMENTARY: Radical Reform Proposal for U.S. Healthcare

R. A. Rudick and D. M. Cosgrove

The integration of clinical research with clinical care is central to improving public health.

RESEARCH ARTICLE: Functional Repair of Human Donor Lungs by IL-10 Gene Therapy

M. Gyep et al.

PERSPECTIVE: Waiting to Exhale—Hope for Lung Transplant Recipients

D. S. Wilkes

Local induction of IL-10 promotes recovery of function in human lung explants deemed not suitable for transplantation.

RESEARCH ARTICLE: Special Immune Cells Create Destructive Environment in Emphysemic Lungs

M. Shan et al.

An autoimmune reaction created by immune cells in the lungs of patients with emphysema drives lung destruction.

SCIENCE PODCAST

www.sciencemag.org/multimedia/podcast

Free Weekly Show

Download the 30 October Science Podcast to hear about pandemic H1N1 and the 2009 Hajj, the contribution of inherited wealth to economic inequality, and more.

ORIGINS BLOG

blogs.scientificamerican.com/origins

A History of Beginnings

SCIENCE INSIDER

blogs.scienmag.org/scienceinsider

Science Policy News and Analysis
Editor's Summary

This copy is for your personal, non-commercial use only.

**Article Tools**
Visit the online version of this article to access the personalization and article tools:
http://science.sciencemag.org/content/326/5953

**Permissions**
Obtain information about reproducing this article:
http://www.sciencemag.org/about/permissions.dtl