CONTENTS

CONTENTS continued >>

Vol. 322, Issue 5904

1019 Science Online
1021 This Week in Science
1026 Editors’ Choice
1028 Contact Science
1031 Random Samples
1033 Newsmakers
1120 New Products
1121 Science Careers

EDITORIAL
1025 A Call to Serve
by William A. Wulf and Anita K. Jones

NEWS OF THE WEEK
Obama Victory Raises Hopes for New Policies, Bigger Budgets
New Congress Looks Familiar
European Union Floats Tighter Animal-Research Rules

SCIENCESCOPE
Vatican Science Conference Offers an Ambiguous Message
Statin Therapy Reduces Disease in Healthy Volunteers—but How, Exactly?

NEWS FOCUS
The Birth of Childhood
>> Report p. 1089; Science Podcast
Minnesota Ecologist Pushes Prairie Biofuels
A Bunch of Trouble

LETTERS
European Union and NIH Collaborate
E. A. Zerhouni and J. Potocnik
Skeptical of Assisted Colonization
I. Davidson and C. Simkanin
Assisted Colonization Won’t Help Rare Species
D. Huang
Where Species Go, Legal Protections Must Follow
G. Chapron and G. Samelius
Response O. Hoegh-Guldberg et al.

CORRECTIONS AND CLARIFICATIONS

BOOKS ET AL.
Trace Fossil Analysis
A. Seilacher, reviewed by S. Jensen
In Sputnik’s Shadow The President’s Science Advisory Committee and Cold War America
Z. Wang, reviewed by G. A. Good
Sant Ocean Hall reviewed by L. D. Jenkins

POLICY FORUM
Certificates of Confidentiality and Compelled Disclosure of Data
L. M. Beskow, L. Dame, E. J. Costello

PERSPECTIVES
A Sideways Glance at Chemical Reactivity
D. A. Blank >> Report p. 1073
A Biolinguistic Agenda
M. D. Hauser and T. Bever
RT Slides Home…
S. G. Sarafianos and E. Arnold >> Report p. 1092
Understanding Glacier Flow in Changing Times
R. B. Alley, M. Fahnestock, I. Joughin
A Protein Pupylation Paradigm
S. Mukherjee and K. Orth >> Report p. 1104

Cover
A montage showing three views of a 5-millimeter-long juvenile medaka, with the nervous system imaged with a digital scanned laser light sheet fluorescence microscope. This technique has been used to reconstruct embryogenesis in zebrafish. See page 1065.

Image: Philipp Keller, Lazaro Centanin, Annette Schmidt/EMBL
Optical Images of an Exosolar Planet 25 Light-Years from Earth
P. Kalas et al.
Images from the Hubble Space Telescope reveal a Jupiter-sized planet, perhaps with a surrounding dust disk, orbiting about 115 astronomical units from a nearby main sequence star.
10.1126/science.1166609

Direct Imaging of Multiple Planets Orbiting the Star HR 8799
C. Marois et al.
Infrared images from the Keck and Gemini telescopes reveal three giant planets orbiting counterclockwise around a young star, in a scaled-up version of our solar system.
10.1126/science.1166585

Perspective: Exoplanets—Seeing Is Believing
M. S. Marley

Genomic Loss of microRNA-101 Leads to Overexpression of Histone Methyltransferase EZH2 in Cancer
S. Varambally et al.
In some human prostate cancers, a genomic deletion eliminates a key regulatory microRNA, which results in disruption of gene silencing mechanisms.
10.1126/science.1165395

A Role for the ESCRT System in Cell Division in Archaea
R. Y. Samson, T. Obita, S. M. Freund, R. L. Williams, S. D. Bell
A class of proteins required for membrane trafficking and cytokinesis in eukaryotes is also unexpectedly required in some Archaea for cell division.
10.1126/science.1165322

Erosion of sediment is harmful to the growth of marsh grass, possibly explaining salt marsh die-back, a phenomenon thought to be a result of sea-level changes.

Transmission electron microscopy reveals the kinetics of nucleation and growth of silicon particles from liquid gold-silicon droplets, the first step in growing nanowires.

Raman spectroscopy offers a global view of how all the atoms move during the photoinduced picosecond isomerization of stilbene.

An organic molecule absorbed on graphite forms networks that represent an intermediate state between crystalline ordering and amorphous packing.
A nearly complete pelvis of an adult female Homo erectus reveals that its morphology had evolved in response to increasing fetal brain size, not environmental factors. 

**ANTHROPOLOGY**

A Female Homo erectus Pelvis from Gona, Ethiopia

S. W. Simpson et al.

The atmospheric concentration of carbonyl sulfide, a trace gas consumed by land plants along with carbon dioxide, can be used to estimate the amount of photosynthesis occurring on land.

**ATMOSPHERIC SCIENCE**

Photosynthetic Control of Atmospheric Carbonyl Sulfide During the Growing Season

J. E. Campbell et al.

The atmosphere concentration of carbonyl sulfide, a trace gas consumed by land plants along with carbon dioxide, can be used to estimate the amount of photosynthesis occurring on land.

**CHEMISTRY**

Observing the Creation of Electronic Feshbach Resonances in Soft X-ray–Induced O₂ Dissociation

A. S. Sandhu et al.

Attosecond spectroscopy reveals that a second electron cannot be ionized from an oxygen molecule until the nuclei, which repel each other, have moved about 30 angstroms apart.

**BIOCHEMISTRY**

Slide into Action: Dynamic Shuttling of HIV Reverse Transcriptase on Nucleic Acid Substrates

S. Liu et al.

As it converts viral single-stranded RNA to double-stranded DNA, HIV reverse transcriptase shuttles between the ends of the nucleic acid, flipping its orientation.

**IMMUNOLOGY**

Batf3 Deficiency Reveals a Critical Role for CD8α⁺ Dendritic Cells in Cytotoxic T Cell Immunity

K. Hildner et al.

In mice, an identifiable subset of antigen-presenting cells is necessary for a normal immune cell response to viral infection and for efficient rejection of tumor cells.

**IMMUNOLOGY**

Del-1, an Endogenous Leukocyte-Endothelial Adhesion Inhibitor, Limits Inflammatory Cell Recruitment

E. Y. Choi et al.

An endogenous inhibitor of immune cell adhesion dampens recruitment of immune cells to sites of inflammation.

**PLANT SCIENCE**

Regulatory Genes Control a Key Morphological and Ecological Trait Transferred Between Species

M. Kim et al.

A key trait—asymmetric flowers with large petals—moves between flower species when a cluster of regulatory genes is transferred from a hybrid to a recipient parent.

**MICROBIOLOGY**

Genome of an Endosymbiont Coupling N₂ Fixation to Cellulolysis Within Protoplast Cells in Termite Gut

Y. Hongoh et al.

In the termite gut, an endosymbiotic bacterium fixes atmospheric nitrogen within the cells of its cellulose-digesting host protist, allowing the insect to thrive on wood.

**MICROBIOLOGY**

Globally Distributed Uncultivated Oceanic N₂-Fixing Cyanobacteria Lack Oxygenic Photosystem II

J. P. Zehr et al.

An abundant marine cyanobacteria group fixes nitrogen but lacks the genes for carbon fixation and oxygen production, forcing a reevaluation of nitrogen and carbon cycling.

**PLANT SCIENCE**

Arabidopsis Stomatal Initiation Is Controlled by MAPK-Mediated Regulation of the bHLH SPEECHLESS

G. R. Lampard, C. A. MacAlister, D. C. Bergmann

Positive and negative developmental signals that determine the locations of gas-exchanging leaf pores converge on a specific domain within a transcription factor.

**PLANT SCIENCE**

**MICROBIOLOGY**

Genome of an Endosymbiont Coupling N₂ Fixation to Cellulolysis Within Protoplast Cells in Termite Gut

Y. Hongoh et al.

In the termite gut, an endosymbiotic bacterium fixes atmospheric nitrogen within the cells of its cellulose-digesting host protist, allowing the insect to thrive on wood.

**MICROBIOLOGY**

Globally Distributed Uncultivated Oceanic N₂-Fixing Cyanobacteria Lack Oxygenic Photosystem II

J. P. Zehr et al.

An abundant marine cyanobacteria group fixes nitrogen but lacks the genes for carbon fixation and oxygen production, forcing a reevaluation of nitrogen and carbon cycling.

**PLANT SCIENCE**

Regulatory Genes Control a Key Morphological and Ecological Trait Transferred Between Species

M. Kim et al.

A key trait—asymmetric flowers with large petals—moves between flower species when a cluster of regulatory genes is transferred from a hybrid to a recipient parent.
Keratin in claws.

SCIENCE NOW
www.sciencenow.org
HIGHLIGHTS FROM OUR DAILY NEWS COVERAGE

So That’s Why Chickens Have Combs
Birds and reptiles make hair proteins, just like mammals do.

Earth’s Strange Tango With the Sun
Mysterious magnetic portals link our planet to its star.

Bird Brains Split Lookout Duty
A migrating bird rests half of its brain while the other half remains alert.

A Wnt pathway interaction.

SCIENCE SIGNALING
www.sciencesignaling.org
THE SIGNAL TRANSDUCTION KNOWLEDGE ENVIRONMENT

RESEARCH ARTICLE: Cripto Localizes Nodal at the Limiting Membrane of Early Endosomes
Cripto facilitates ALK4 signaling by attenuating intraendosomal sorting of internalized Nodal.

RESEARCH ARTICLE: New Regulators of Wnt/β-Catenin Signaling Revealed by Integrative Molecular Screening
Integration of protein-protein interaction networks and human genome-wide RNAi screens produces mechanistic insight into Wnt/β-catenin signaling.

PODCAST
M. B. Major, R. T. Moon, A. M. VanHook
Ben Major and Randall Moon discuss their screen for cell type–specific modifiers of Wnt signaling.

E-LETTER: Calcium-Sensing Receptor Function in the Skeleton—Alternative Interpretations
L. D. Quarles and M. Pi

E-LETTER: Response to Quarles and Pi
A letters exchange debates an alternative interpretation of the observations recently presented by Chang et al. (Sci. Signal. 1 (35), ra1).

Conflict of interest: A big career gamble.

SCIENCE CAREERS
www.sciencecareers.org/career_development
FREE CAREER RESOURCES FOR SCIENTISTS

Conflicts of Interest and Physician-Scientists
J. B. Finkelstein
Clinician-researchers need to take threats from conflicts of interest seriously.

A Career Niche at the Interface of Academe and Industry
E. Pain
Spanish biologist David Ráfols used his technology and industry experience to create his open-innovation company.

Learning to Let Go While Trusting Your Data
S. Webb
New investigators must take responsibility for the integrity of their lab’s data, even as direct control over that data declines.

From the Archives: Do You Really Want Your Name on That Paper?
K. Cottingham et al.
Science Careers looks at the ethics of authorship, responsibility, and keeping careful records in the lab.

Separate individual or institutional subscriptions to these products may be required for full-text access.