NEWS OF THE WEEK
New Catalyst Marks Major Step in the March Toward Hydrogen Fuel
Regulators Seek to Redefine ‘Working Life’
New Minister Raises Expectations for Science in Argentina
Is Dinosaur ‘Soft Tissue’ Really Slime?

SCIENCESCOPE
Science at the Olympics
Will Beijing’s Dirty Air Hurt Performance?
Can Ice Vests Provide a Competitive Chill?
Can New Materials Make the Athlete?
Does Doping Work?

NEWS FOCUS
China’s Environmental Challenges
Three Gorges Dam: Into the Unknown
Fears Over Western Water Crisis
A Green Fervor Sweeps the Qinghai-Tibetan Plateau
Beijing’s Marathon Run to Clean Foul Air Nears Finish Line

LETTERS
The Cost Benefits of Early Detection W. G. Guntheroth
Policy Forum Offered New Ideas J. Liu and J. Diamond
Survey Says: Name a Role Model M. R. Webb

CORRECTIONS AND CLARIFICATIONS

BOOKS ET AL.
The Dragon and the Elephant Agricultural and Rural Reforms in China and India A. Gulati and S. Fan, Eds., reviewed by C. P. Timmer
Science Festivals: Celebrating Science as Culture L. M. Krauss

POLICY FORUM
Structural Disequilibria in Biomedical Research M. S. Teitelbaum

PERSPECTIVES
A Splicing Switch for T Cells N. Holmes
The Cosmic Rosetta Stone V. Bromm
“Make and Bake” in Signaling A. G. Eliopoulos
Did You Say “Fast”? J. Flückiger
Electrochemical Capacitors for Energy Management J. R. Miller and P. Simon
Ecosystem Disturbance, Carbon, and Climate S. W. Running

COVER
Heavy pollution blankets Tiananmen Square, Beijing, on 27 December 2007. Chinese authorities are taking drastic measures to improve the city’s air quality for the Olympics. Bad air is just one of many environmental challenges China is facing. See the special News Focus section beginning on page 628.

EDITORIAL
Blue Skies for China by Bojie Fu

DEPARTMENTS
Science Online
This Week in Science
Editors’ Choice
Contact Science
Random Samples
Newsmakers
New Products
Science Careers

www.sciencemag.org
DEVELOPMENTAL BIOLOGY

Induced Pluripotent Stem Cells Generated from Patients with ALS Can Be Differentiated into Motor Neurons

J. T. Dimos et al.

Skin cells from elderly individuals with a mutation that causes amyotrophic lateral sclerosis (ALS) were used to derive stem cells that could then be differentiated.

10.1126/science.1158799

PALEOCLIMATE

Regional Synthesis of Mediterranean Atmospheric Circulation During the Last Glacial Maximum

J. Kuhlemann et al.

A three-dimensional reconstruction of atmospheric temperatures in the Mediterranean during glacial times is analogous to one of winter during the Little Ice Age.

10.1126/science.1157638

TECHNICAL COMMENT ABSTRACTS

NEUROSCIENCE

Comment on "Magnetic Resonance Spectroscopy Identifies Neural Progenitor Cells in the Live Human Brain"

S. D. Friedman

Comment on "Magnetic Resonance Spectroscopy Identifies Neural Progenitor Cells in the Live Human Brain"

J. F. A. Jansen, J. D. Gearhart, J. W. M. Bulte

Response to Comments on "Magnetic Resonance Spectroscopy Identifies Neural Progenitor Cells in the Live Human Brain"

P. M. Djurič et al.

BREVIA

BIOCHEMISTRY

Evidence of Global Chlorophyll d

Y. Kashiyama et al.

A survey of chlorophyll d, used by a cyanobacterium for harvesting infrared light, implies that this microbe inhabits a much wider range than previously thought.

RESEARCH ARTICLES

BIOCHEMISTRY

Crystal Structure of the Termination Module of a Nonribosomal Peptide Synthetase

A. Tanovic, S. A. Samel, L.-O. Essen, M. A. Marahiel

A large enzyme complex assembles peptide natural products without ribosomal participation by successive catalytic steps at the end of a flexible, substrate-loaded arm.

CELL BIOLOGY

Essential Cytoplasmic Translocation of a Cytokine Receptor–Assembled Signaling Complex

A. Matsuzawa et al.

Degradation of one member of a protein complex that forms when a cytokine receptor is activated causes the complex to move to the cytoplasm, triggering the downstream pathway.

ASTRONOMY

Protostar Formation in the Early Universe

N. Yoshida, K. Omukai, L. Hernquist

A model traces the coalescence of small variations in gas density after the Big Bang into protostars, showing that the first stars would be large enough to make heavy elements.
Heterogeneous Ribonucleoprotein, hnRNPLL
Regulation of CD45 Alternative Splicing by
A ribonucleoprotein directs the splicing of the transcript for CD45, a transmembrane tyrosine phosphatase that initiates signaling through antigen receptors.

microbial activity.
primarily controlled by its nitrogen content, which affects the rate of mineralization.

The Global Stoichiometry of Litter Nitrogen Mineralization
S. Manzoni, R. B. Jackson, J. A. Trofymow, A. Porporato
A global data set shows that the decomposition rate of plant litter is more than once during the last deglaciation.

Abrupt Climate Change Happens in Few Years
J. P. Steffensen et al.
Greenland’s climate flipped to a different state within 1 to 3 years more than once during the last deglaciation.

The Cell and Molecular Basis of Mechanical, Cold, and Inflammatory Pain
B. Abrahamsen et al.
Pain neurons containing a particular sodium channel respond only to cold, mechanical, and inflammatory pain, not to all painful stimuli as previously assumed.

Colossal Ionic Conductivity at Interfaces of Epitaxial ZrO$_2$Y$_2$O$_3$/SrTiO$_3$ Heterostructures
J. Garcia-Barriocanal et al.
Thin layers of zirconium oxide containing some yttrium in a strontium titanate fuel cell increase its ionic conductivity, allowing it to operate at much lower temperatures.

Pyogenic Bacterial Infections in Humans with MyD88 Deficiency
H. von Bernuth et al.
Although a key immune gene is necessary for mice to fight off a broad range of pathogens, in humans it is only required to protect against a few specialized bacteria.

Censoring of Autoreactive B Cell Development by the Pre-B Cell Receptor
R. A. Keenan et al.
A protein that helps newly rearranged antibody chains arrive at the cell surface of immature immune cells is found to help delete cells with potential autoreactivity.

Generation of Pluripotent Stem Cells from Adult Mouse Liver and Stomach Cells
T. Aoi et al.
Induced pluripotent stem cells are generated by direct reprogramming of adult liver and stomach cells.

The Global Stoichiometry of Litter Nitrogen
Mineralization
S. Manzoni, R. B. Jackson, J. A. Trofymow, A. Porporato
A global data set shows that the decomposition rate of plant litter is primarily controlled by its nitrogen content, which affects the rate of microbial activity.

Regulation of CD45 Alternative Splicing by Heterogeneous Ribonucleoprotein, hnRNPLL
S. Oberdoerffer et al.
A ribonucleoprotein directs the splicing of the transcript for CD45, a transmembrane tyrosine phosphatase that initiates signaling through antigen receptors.

Colossal Ionic Conductivity at Interfaces of Epitaxial ZrO$_2$Y$_2$O$_3$/SrTiO$_3$ Heterostructures
J. Garcia-Barriocanal et al.
Thin layers of zirconium oxide containing some yttrium in a strontium titanate fuel cell increase its ionic conductivity, allowing it to operate at much lower temperatures.

Pyogenic Bacterial Infections in Humans with MyD88 Deficiency
H. von Bernuth et al.
Although a key immune gene is necessary for mice to fight off a broad range of pathogens, in humans it is only required to protect against a few specialized bacteria.

Censoring of Autoreactive B Cell Development by the Pre-B Cell Receptor
R. A. Keenan et al.
A protein that helps newly rearranged antibody chains arrive at the cell surface of immature immune cells is found to help delete cells with potential autoreactivity.
Anesthetics increase postoperative pain.

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

PODCAST
N. R. Gough and A. M. VanHook
Some anesthetics activate TRPA1 channels to trigger pain and nerve-mediated inflammation.

PRESENTATION: A Static Network Analysis Tool for Pharmacological Analysis of Signal Transduction Pathways
B. B. Samal and L. E. Eiden
Simulate knocking out one or more components from a pathway to find alternate connections between a stimulus and a target response.

Legally drunk.

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

Now That’s a Party Animal
Researchers discover a wild tree shrew that lives on alcoholic nectar.

Take a Deep Breath—and Thank Mount Everest
Plate tectonics gave rise to atmospheric oxygen.

To Sleep, Perchance to Forget
Aging may impair the consolidation of memories during sleep.

A career in keeping athletics clean.

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

Taken for Granted: The Fat Lady Sings
B. L. Benderly
Organizers claim success in unionizing postdocs on University of California campuses.

A Scientist in the Service of Clean Sports
E. Pain
Chemist Osquel Barroso matches his scientific and sporting interests at the World Anti-Doping Agency.

Careers in Research Support
S. Gaidos
Institutions recognize the advantages of hiring science Ph.D.’s as research administrators.

August 2008 Funding News
J. Fernández
Learn about the latest in research funding, scholarships, fellowships, and internships.

>> News story p. 627

Download the 1 August Science Podcast to hear about a water-splitting catalyst for energy storage applications, the molecular basis of pain, China’s environmental challenges, and more.

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