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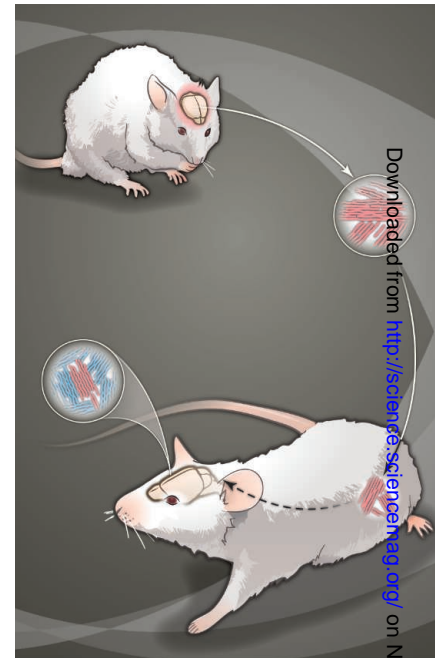
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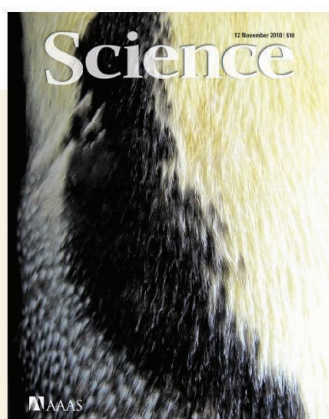


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COVER

Neck region of an emperor penguin (*Aptenodytes forsteri*), the skin of which was collected in 1929 on Richard E. Byrd's first Antarctic expedition. The ~36-million-year-old feathers of a giant fossil penguin from Peru indicate that feather shape evolved early in the penguin lineage, but that adult penguin coloration has shifted from a color palette that included reddish-browns and grays. See page 954.

Photo: Julia Clarke, University of Texas at Austin

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BREVIA

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M. A. Killingsworth and D. T. Gilbert
 The iPhone Hap App reveals that wandering thoughts lead to unhappiness.
 >> *Science Podcast*

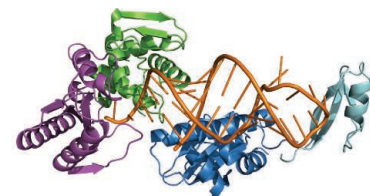
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 The iron-bound oxygen intermediate responsible for many challenging biochemical oxidations has been thoroughly characterized.
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- 937 **How the CCA-Adding Enzyme Selects Adenine over Cytosine at Position 76 of tRNA**
B. Pan et al.
 Crystal structures along the reaction pathway show that only adenine is correctly oriented for incorporation at transfer RNA position 76.

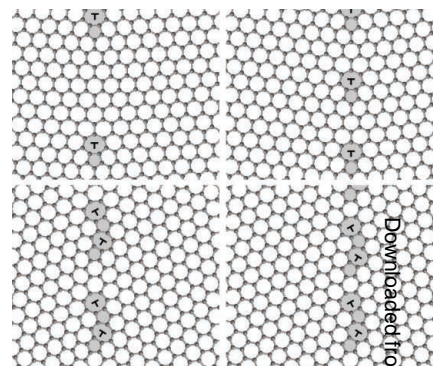
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 A neutron star lacking a strong magnetic field can still emit short bursts of high-energy radiation.
- 946 **Anomalous Strength Characteristics of Tilt Grain Boundaries in Graphene**
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 Simulations indicate that high-angle boundaries can better accommodate strain and prevent failure in graphene.
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- 952 **Coupling of Nitrous Oxide and Methane by Global Atmospheric Chemistry**
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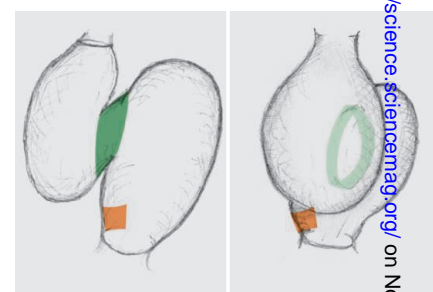
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 Palynology shows that tropical forests persisted under conditions of rapid climate warming 55 million years ago.
- 961 **Conditional Cooperation and Costly Monitoring Explain Success in Forest Commons Management**
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 Social behaviors in lab experiments that result in long-term productivity are seen in a real-world forest management program.
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P. Rohani et al.
 Age-specific social networks can influence transmission of infection and should be considered in health policy planning.
- 985 **Essential Regulation of CNS Angiogenesis by the Orphan G Protein-Coupled Receptor GPR124**
F. Kuhnert et al.
 A factor is identified that determines the amount of vasculature in the brain, and, in so doing, affects brain function.



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SCIENCEONLINE

SPECIAL ANNOUNCEMENT: ELECTIONS
Additional Candidates for AAAS Annual Election

The following candidates have been added to the ballot for the 2010 election of AAAS officers. Members registered in more than one section will receive ballots for elections for each section they are enrolled in. For a list of other candidates, please see AAAS News & Notes in the 29 October 2010 issue of *Science*.

AAAS will be offering the opportunity to vote either by mail or via a Web balloting system for this year's election. Detailed instructions for using the online option will be provided to all members.

General Election

Committee on Nominations: Rosina M. Bierbaum, Univ. of Michigan; Francisco J. Ayala, Univ. of California, Irvine; John E. Burris, Burroughs Wellcome Fund; May R. Berenbaum, Univ. of Illinois, Urbana-Champaign; Thomas D. Pollard, Yale Univ.; Jo Handelsman, Yale Univ.; Roger N. Beachy, U.S. Department of Agriculture; Sandra M. Faber, Univ. of California, Santa Cruz

Atmospheric and Hydrospheric Sciences

Council Delegate: Lynne D. Talley, Scripps Institution of Oceanography

Societal Impacts of Science and Engineering

Council Delegate: C. K. Gunsalus, Univ. of Illinois, Urbana-Champaign

SCIENCEEXPRESS

www.sciencexpress.org

How Learning to Read Changes the Cortical Networks for Vision and Language

S. Dehaene et al.

Reading changes the mind.

10.1126/science.1194140

>> *Science Podcast*

Lynx1, a Cholinergic Brake, Limits Plasticity in Adult Visual Cortex

H. Morishita et al.

A gene identified in the mouse may show the way to improved treatments for amblyopia, a condition of indistinct vision.

10.1126/science.1195320

How Cats Lap: Water Uptake by *Felis catus*

P. M. Reis et al.

Cats use fluid inertia to generate a liquid column that they catch in their mouths before gravity destroys it.

10.1126/science.1195421

Optomechanically Induced Transparency

S. Weis et al.

Radiation pressure is used to manipulate the optical properties of an optomechanical system.

10.1126/science.1195596

A Cryptic Sulfur Cycle in Oxygen-Minimum-Zone Waters off the Chilean Coast

D. E. Canfield et al.

Bacterial sulfur reduction and oxidation accompanies nitrogen cycling where oxygen levels at depth are low.

10.1126/science.1196889

SCIENCENOW

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Highlights From Our Daily News Coverage

New Malaria Drug Could Save Tens of Thousands
Artesunate bests quinine at saving African children from the disease.

Rethinking Galactic Architecture:

Dark Matter Optional

Clusters of thousands of stars may have formed in an unexpected way.

Time for Your Skin Transfusion?

Study suggests new route for making blood cells from skin.

SCIENCE SIGNALING

www.sciencesignaling.org

The Signal Transduction Knowledge Environment

EDITORIAL GUIDE: Focus Issue—

Getting Excited About Glia

E. M. Adler

Complementing the 5 November *Science* special issue, this issue highlights glial cell function, development, and disease.

RESEARCH ARTICLE: Akt and Autophagy Cooperate to Promote Survival of Drug-Resistant Glioma

Q.-W. Fan et al.

Combined inhibition of PI3K, mTOR, and autophagy promotes glioma cell death.

PERSPECTIVE: Control of Breathing by "Nerve Glue"

K. Ballanyi et al.

Astrocytes sense the need to breathe.

PRESENTATION: Wnt5a Induces Simultaneous Cortical Axon Outgrowth and Repulsive Turning Through Distinct Signaling Mechanisms

L. Li et al.

Chemorepulsion and growth stimulation may cooperate to guide cortical axons.

JOURNAL CLUB: Grooming and Growing with Microglia

J. M. Antony

Microglia modulate neurobehavior.

TEACHING RESOURCE: Visualizing Calcium Signaling in Astrocytes

R. D. Fields

Astrocyte signaling is apparent in movies of rat brain astrocytes cultured with fluorescent calcium indicator dyes.

SCIENCE CAREERS

www.sciencereers.org/career_magazine

Free Career Resources for Scientists

SPECIAL FOCUS ON RESEARCH INTEGRITY
Working With Industry Under a Microscope

K. Hede

Regulations seem to discourage academic scientists from partnering with industry, but such collaboration is essential to translational research.

Ghostwriters in the Medical Literature

S. Gaidos

Despite new disclosure requirements, ghostwriters remain a threat to the integrity of the scientific literature, as well as careers.

SCIENCE TRANSLATIONAL MEDICINE

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Integrating Medicine and Science

COMMENTARY: Achieving a Nationwide Learning Health System

C. P. Friedman et al.

The secure re-use of patient data will speed knowledge transfer from bench to bedside.

RESEARCH ARTICLE: TLR9 Differentiates Rapidly from Slowly Progressing Forms of Idiopathic Pulmonary Fibrosis

G. Trujillo et al.

Increased expression of Toll-like receptor 9 boosts fibrosis in patients with rapidly progressing lung disease.

RESEARCH ARTICLE: Prevention of Muscle Aging by Myofiber-Associated Satellite Cell Transplantation

J. K. Hall et al.

Transplanting myofiber satellite stem cells into mouse muscle protects against age-related muscle degeneration.

SCIENCE PODCAST

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Free Weekly Show

Download the 12 November *Science* Podcast to hear about literacy's effects on brain function, U.S. election results, happiness by living in the moment, and more.

SCIENCE INSIDER

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Science Policy News and Analysis

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