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Australopithecus sediba

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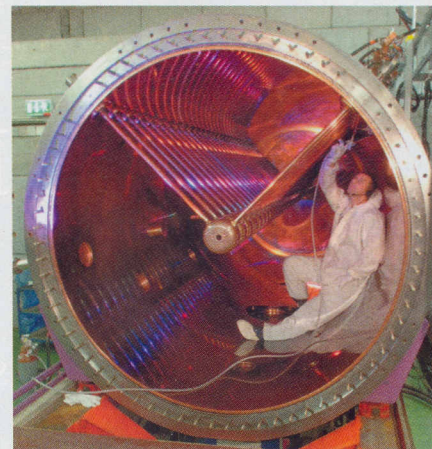
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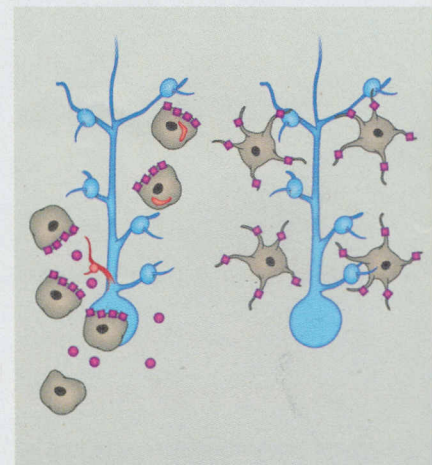
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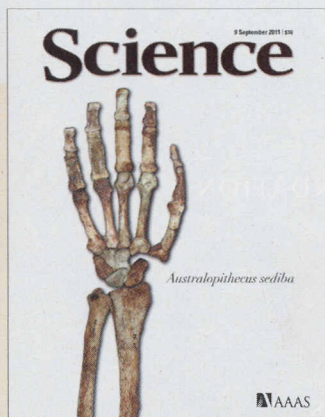
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COVER

The right forearm and hand (hand skeleton ~12.3 centimeters long) of *Australopithecus sediba*, specimen Malapa Hominin 2. Papers in this issue present a detailed look at the hands, feet, pelvis, brain endocast, and age of this hominid, which lived 2 million years ago, near the emergence of our genus, *Homo*. See the series of Reports starting on p. 1402, News Focus package p. 1370, and www.sciencemag.org/extra/sediba.

Photo: Peter Schmid, courtesy of Lee Berger and the University of the Witwatersrand

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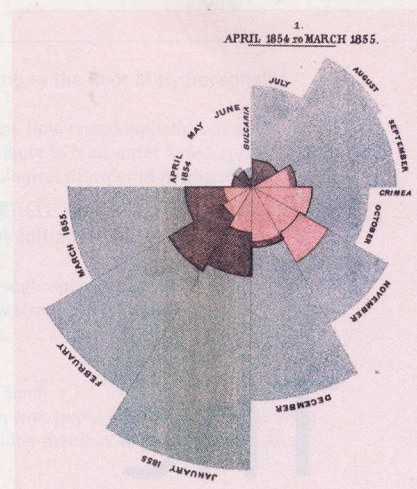
- 1401** A Gene for an Extended Phenotype
K. Hoover et al.
An insect virus gene controls the behavior of the dying host to increase dispersion of the virus.

REPORTS

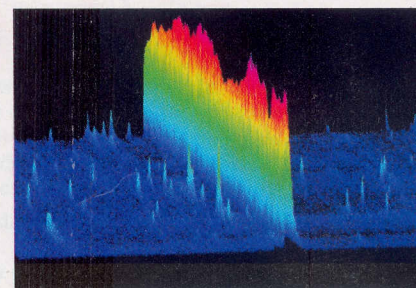
- 1402** The Endocast of MH1, *Australopithecus sediba*
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- 1407** A Partial Pelvis of *Australopithecus sediba*
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- 1411** *Australopithecus sediba* Hand Demonstrates Mosaic Evolution of Locomotor and Manipulative Abilities
T. L. Kivell et al.
- 1417** The Foot and Ankle of *Australopithecus sediba*
B. Zipfel et al.
- 1421** *Australopithecus sediba* at 1.977 Ma and Implications for the Origins of the Genus *Homo*
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>> News stories pp. 1370 and 1373; Science Podcast
- 1423** A Simple, Multidimensional Approach to High-Throughput Discovery of Catalytic Reactions
D. W. Robbins and J. F. Hartwig
A screening technique based on simple mass spectrometry measurements uncovers catalysts for organic coupling reactions.
>> Perspective p. 1387
- 1427** Ice Flow of the Antarctic Ice Sheet
E. Rignot et al.
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C. J. Clark et al.
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Dry conditions during endurance flight increase rates of lean mass loss and protein catabolism in Swainson's thrushes.

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- 1445** Chromosome Organization by a Nucleoid-Associated Protein in Live Bacteria
W. Wang et al.
Super-resolution imaging in live *Escherichia coli* reveals protein clusters that sequester DNA loci and organize the chromosome.
- 1449** Ribosome Assembly Factors Prevent Premature Translation Initiation by 40S Assembly Intermediates
B. S. Strunk et al.
Ribosome assembly factors block multiple steps in translation initiation.
- 1453** Mutations in *CIC* and *FUBP1* Contribute to Human Oligodendroglioma
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- 1456** Synaptic Pruning by Microglia Is Necessary for Normal Brain Development
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- 1458** Light-Induced Structural and Functional Plasticity in *Drosophila* Larval Visual System
Q. Yuan et al.
Postsynaptic plasticity participates in the adaptation of a sensory circuit to the environment.
- 1462** HCN2 Ion Channels Play a Central Role in Inflammatory and Neuropathic Pain
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Action potential firing, initiated by HCN2 ion channels, is the basic mechanism underlying neuropathic pain.

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SCIENCEEXPRESS

www.sciencexpress.org

Live Attenuated Malaria Vaccine Designed to Protect Through Hepatic CD8⁺ T Cell Immunity

J. E. Epstein et al.

Intravenous immunization of purified and irradiated malaria parasite in mice conferred protection against malaria.

10.1126/science.1211548

An Expanded Palette of Genetically Encoded Ca²⁺ Indicators

Y. Zhao et al.

Directed protein evolution provides a series of fluorescent protein-based indicators for multicolor Ca²⁺ imaging.

10.1126/science.1208592

Synthesized Light Transients

A. Wirth et al.

Light spanning the near infrared to the ultraviolet has been confined in pulses shorter than a single optical cycle.

10.1126/science.1210268

800,000 Years of Abrupt Climate Variability

S. Barker et al.

Greenland climate variability for the past 800,000 years was inferred from the Antarctic ice-core temperature record.

10.1126/science.1203580

A Major Constituent of Brown Algae for Use in High-Capacity Li-Ion Batteries

I. Kovalenko et al.

Alginate extracts help stabilize silicon nanoparticles used in a high-capacity lithium-silicon battery.

10.1126/science.1209150

>> [Science Podcast](#)

SCIENCENOW

www.sciencenow.org

Highlights From Our Daily News Coverage

Hatching the Milky Way

Astronomers produce a virtual galaxy on a computer.

<http://scim.ag/computer-galaxy>

Australian Frogs Do the Dew

Amphibians hop from cold locales to hot burrows to collect—and drink—condensation on their backs.

<http://scim.ag/frog-dew>

Physicists Turn a Single Atom Into a Mirror

This advance could help light the way to atomic-scale optical systems on chips.

<http://scim.ag/atom-mirror>

The Brain's Fountain of Youth

Blood-borne factors can turn back the clock on an aging brain.

<http://scim.ag/brain-youth>

SCIENCE SIGNALING

www.sciencesignaling.org

The Signal Transduction Knowledge Environment

6 September issue: <http://scim.ag/ss090611>

EDITORIAL GUIDE: Focus Issue—Series on Computational and Systems Biology

N. R. Gough

The month of September includes research, teaching materials, and resources that exemplify themes in computational and systems biology.

RESEARCH RESOURCE: A Directed Protein Interaction Network for Investigating Intracellular Signal Transduction

A. Vinayagam et al.

Effective prediction of the direction of signal flow in an interaction network enables modeling of signaling dynamics and identification of regulatory proteins.

MEETING REPORT: Crowdsourcing Network Inference—The DREAM Predictive Signaling Network Challenge

R. J. Prill et al.

By aggregating the efforts of the research community, comprehensive and accurate inference of signaling networks may become achievable.

RESEARCH ARTICLE: Small Molecule-Mediated Activation of the Integrin CD11b/CD18 Reduces Inflammatory Disease

D. Maiguel et al.

PODCAST

V. Gupta and A. M. VanHook

Activating integrin signaling may be an effective strategy for developing therapeutics to reduce leukocyte recruitment during inflammation.

SCIENCE TRANSLATIONAL MEDICINE

www.sciencetranslationalmedicine.org

Integrating Medicine and Science

7 September issue: <http://scim.ag/stm090711>

FOCUS: Imaging the Infected Heart

A. Alavi et al.

This Focus summarizes current and prospective roles of modern functional imaging techniques for detecting infection in general and endocarditis in particular.

PERSPECTIVE: Hidden Immunotherapy Targets Challenge Dogma

S. Ferrone

Intracellular tumor antigen-specific monoclonal antibodies inhibit tumor growth and metastasis and prolong survival of tumor-bearing mice.

RESEARCH ARTICLE: Targeting Intracellular Oncoproteins with Antibody Therapy or Vaccination

K. Guo et al.

Antibody therapy can target intracellular proteins.

RESEARCH ARTICLE: Activation of ERBB2 Signaling Causes Resistance to the EGFR-Directed Therapeutic Antibody Cetuximab

K. Yonesaka et al.

Several cancers become resistant to cetuximab by activating a bypass signaling pathway and preventing cetuximab inhibition of ERK1/2-stimulated growth.

FOCUS: Getting to the Root of Hydrocephalus

J. P. McAllister

The blood-borne lipid lysophosphatidic acid and its receptor contribute to fetal-onset hydrocephalus, a severe neurological disorder of newborns.

RESEARCH ARTICLE: Lysophosphatidic Acid Signaling May Initiate Fetal Hydrocephalus

Y. C. Yung et al.

Blockade of lysophosphatidic acid (LPA) signaling provides a new strategy for treating fetal hydrocephalus.

PODCAST

J. Chun and O. Smith

A conversation with Jerold Chun about identification of a lipid in blood that may trigger hydrocephalus in the fetus.

SCIENCE CAREERS

www.sciencereers.org/career_magazine

Free Career Resources for Scientists

Seeking Work in the Social Net

C. Mintz

Social media Web sites allow job seekers to present a fuller image of themselves and to interact directly with potential employers.

http://scim.ag/Social_Search

>> [Science Podcast](#)

Making Translational Research Tangible

K. Hede

The University of North Carolina is working to stimulate the entrepreneurial impulse in its graduate students.

http://scim.ag/Hede_Entrepreneurship

SCIENCEPODCAST

www.sciencemag.org/multimedia/podcast

Free Weekly Show

On the 9 September Science Podcast: *Australopithecus sediba* and the genus *Homo*, brown algae and Li-ion batteries, the race for superheavy elements, and more.

SCIENCEINSIDER

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Science Policy News and Analysis

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