

SPECIAL SECTION

Breakthrough of the Year

WINNER

1598 *Ardipithecus ramidus*

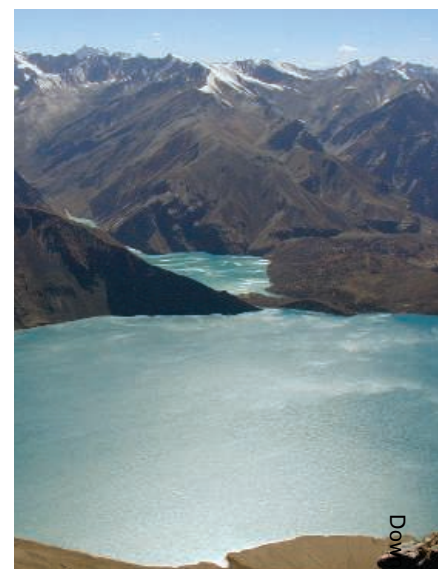
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COVER

Ardipithecus ramidus, a possible human ancestor, inhabited then-wooded regions of Ethiopia 4.4 million years ago. This year, studies of the fossilized skeleton of a member of the species raised surprising questions about how key human traits evolved. See the Breakthrough of the Year special section beginning on page 1598 and at www.sciencemag.org/btoy2009/.

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SCIENCEEXPRESS

www.sciencexpress.org

Spontaneous- and X-ray–Triggered Crystallization at Long Range in Self-Assembling Filament Networks

H. Cui et al.

Dilute solutions of alkyl-terminated peptide filaments can undergo ordering upon x-ray exposure.

10.1126/science.1182340

Objective Confirmation of Subjective Measures of Human Well-Being: Evidence from the U.S.A.

A. J. Oswald and S. Wu

Subjective life-satisfaction scores agree with objective measures of well-being across 50 American states.

10.1126/science.1180606

p53 Controls Radiation-Induced Gastrointestinal Syndrome in Mice Independent of Apoptosis

D. G. Kirsch et al.

Ionizing radiation destroys gastrointestinal epithelial cells by a mechanism that appears to be independent of apoptosis.

10.1126/science.1166202

SCIENCENOW

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Highlights From Our Daily News Coverage

HIV Outwits Yet Another Microbicide

Failure marks the end of the road for nonspecific virus blockers.

A Mind That Touches the Past

People with a sensory mix-up also have exceptional memories.

A Cheap Way to Chop Up Nitrogen

New chemical reaction allows conversion of the ubiquitous gas into a common fertilizer.

SCIENCESIGNALING

www.sciencesignaling.org

The Signal Transduction Knowledge Environment

RESEARCH ARTICLE: EGFR Signaling Through an Akt-SREBP-1–Dependent, Rapamycin-Resistant Pathway Sensitizes Glioblastomas to Antiproliferative Therapy

D. Guo et al.

Inhibitors of fatty acid signaling promote apoptosis in glioblastoma cells with highly active EGFR signaling.

RESEARCH ARTICLE: Function of the Nucleotide Exchange Activity of Vav1 in T Cell Development and Activation

A. Saveliev et al.

The guanine nucleotide exchange activity of Vav1 is required for some, but not all, of its functions in T cells.

PERSPECTIVE: Cell Mechanics and Feedback Regulation of Actomyosin Networks

R. Fernandez-Gonzalez and J. A. Zallen

Mechanical signals shape the organization and dynamics of contractile networks in cells during morphogenesis.

PERSPECTIVE: Book Review—Making Sense of Signal Transduction

W. T. Miller

A textbook provides an overview of signaling concepts and models for teaching.

PODCAST

P. S. Mischel and A. M. VanHook

Inhibiting fatty acid synthesis may be effective in controlling glioblastomas driven by EGFR signaling.

SCIENCECAREERS

www.sciencereers.org/career_magazine

Free Career Resources for Scientists

Tooling Up: Presenting Your Technology

D. Jensen

Budding scientist-entrepreneurs must be able to present their company skillfully to potential investors and partners.

Breakthrough of the Year: A Tale of Two Paleontologists

E. Pain

Two young paleontologists tell how they got involved in the field work that uncovered *Ardipithecus ramidus* in Ethiopia.

>> *Breakthrough of the Year section p. 1598 and www.sciencemag.org/btoy2009/*

GrantsNet Funding News

GrantsNet Staff

Get the latest funding opportunities for science research, fellowships, scholarships, and internships.

SCIENCE TRANSLATIONAL MEDICINE

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Integrating Medicine and Science

PERSPECTIVE: Pharmacologic Induction of CD8⁺ T Cell Memory—Better Living Through Chemistry

L. Gattinoni et al.

Targeting the immune system using small molecules may enhance immunotherapy.

PERSPECTIVE: Toward a Systems-Level Analysis of Infection Biology—A New Method for Conducting Genetic Screens in Human Cells

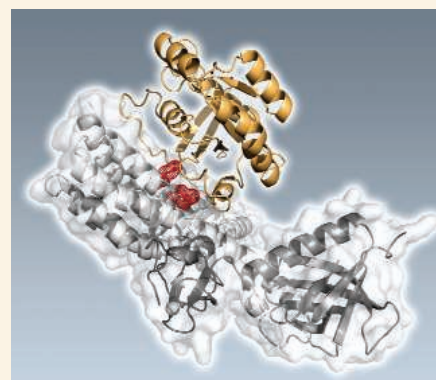
S. A. Stanley and D. T. Hung

Human genetic screens at the DNA level advance therapeutic development.

RESEARCH ARTICLE: Intravenous Hemostat—Nanotechnology to Halt Bleeding

J. P. Bertram et al.

Bioengineers develop functional blood cells.



SCIENCESIGNALING

Structure of Vav1.

SCIENCEPODCAST

www.sciencemag.org/multimedia/podcast

Free Weekly Show

Download the 18 December *Science* Podcast to hear about the year's top scientific breakthroughs and the 2009 virus of the year.

>> *Breakthrough of the Year section p. 1598 and www.sciencemag.org/btoy2009/*

BREAKTHROUGHONLINE

See an expanded version of this week's special section, with references, links, and multimedia at www.sciencemag.org/btoy2009/.

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blogs.sciencemag.org/origins

A History of Beginnings

SCIENCEINSIDER

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Science Policy News and Analysis

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