

COVER

Representatives of diverse species from the plant kingdom. The genomes of thale cress (*Arabidopsis thaliana*), grape (*Vitis vinifera*), rice (*Oryza sativa*), and the moss *Physcomitrella patens* have been sequenced, and there is ongoing genetic research on apple (*Malus domestica*), rose (*Rosa* spp.), tomato (*Solanum lycopersicum*), Gerbera daisy (*Gerbera hybrida*), monkey flower (*Mimulus lewisii*), columbine (*Aquilegia formosa*), maize (*Zea mays*), wheat (*Triticum aestivum*), tulip poplar (*Liriodendron tulipifera*), and the fern *Ceratopteris richardii*. The special section beginning on page 465 includes News stories and Perspectives exploring plant biology, ecology, economic applications, and the future of plant genomics research.

Photo illustration: Kelly Krause/Science (images: Jupiter Images, Getty Images, USDA, Oregon State University)

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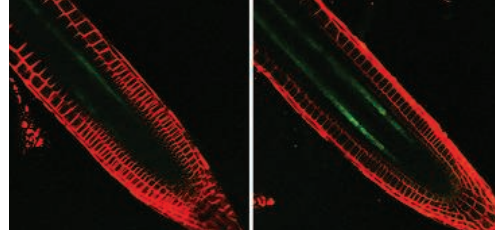
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SCIENCE EXPRESS

www.sciencexpress.org

CLIMATE CHANGE

The Sensitivity of Polar Ozone Depletion to Proposed Geoengineering Schemes

S. Tilmes, R. Müller, R. Salawitch

Calculations imply that injection of sulfur into the atmosphere to counteract global warming would threaten the ozone layer, as occurred after the Mount Pinatubo eruption.

10.1126/science.1153966

IMMUNOLOGY

Coordination of Early Protective Immunity to Viral Infection by Regulatory T Cells

J. M. Lund, L. Hsing, T. T. Pham, A. Y. Rudensky

In mice infected with herpes virus, an usually immunosuppressive T cell is necessary for rapid arrival of immune cells and elevated cytokine levels at the site of infection.

10.1126/science.1155209

PLANT SCIENCE

Cell Identity Mediates the Response of *Arabidopsis* Roots to Abiotic Stress
J. R. Dinneny et al.

In *Arabidopsis* root tips exposed to high salinity or iron deficiency, clusters of genes are induced that are unique to one or both of these stress responses.

>> *Plant Genomes section p. 465*

10.1126/science.1153795

PLANT SCIENCE

Genome-Scale Proteomics Reveals *Arabidopsis thaliana* Gene Models and Proteome Dynamics

K. Baerenfaller et al.

The *Arabidopsis* proteome shifts as the plant develops, and proteins not predicted from genome analysis, some derived from introns and pseudogenes, are expressed.

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10.1126/science.1157956

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Response to Comment on "Eddy/Wind Interactions

Stimulate Extraordinary Mid-Ocean Plankton Blooms"

D. J. McGillicuddy Jr., J. R. Ledwell, L. A. Anderson

[full text at www.sciencemag.org/cgi/content/full/320/5875/448c](http://www.sciencemag.org/cgi/content/full/320/5875/448c)

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Tyrannosaurus rex

C. L. Organ et al.

Phylogenetic analyses of collagen protein fragments from fossils and 21 extant organisms group mastodons with elephants and *Tyrannosaurus rex* with birds.

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Synchronizing Rock Clocks of Earth History 500

K. F. Kuiper et al.

Tying an argon-argon dating standard to a section dated with Earth's orbital variations yields older ages for the standard and for other events, including the K-T boundary. >> *News story p. 434*

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Nanotube Sheets

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When stretched, a sheet made of carbon nanotubes contracts or expands in the opposite direction, depending on how many multiwalled tubes form zig-zag networks.

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A grating near the focal plane can focus microwave radiation to a spot size well below the diffraction limit.

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S.-K. Min, X. Zhang, F. Zwiers

Comparison of 22 climate models to observations show that human activity has increased precipitation in the Arctic over the past 50 years, altering its timing and distribution.

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Efficient Inhibition of the Alzheimer's Disease β -Secretase by Membrane Targeting 520

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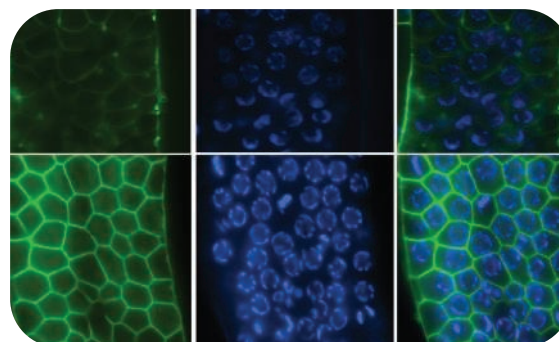
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Vaccinia Virus Uses Macropinocytosis and Apoptotic Mimicry to Enter Host Cells 531

J. Mercer and A. Helenius

To infect host cells, vaccinia virus exposes phosphatidylserine on its surfaces, which signals host cells to recognize the virus as cellular debris and take it up for clearance.

>> *Perspective p. 458; Report p. 528*

CELL BIOLOGY

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J. He, L. Ma, S. Kim, J. Nakai, C. R. Yu

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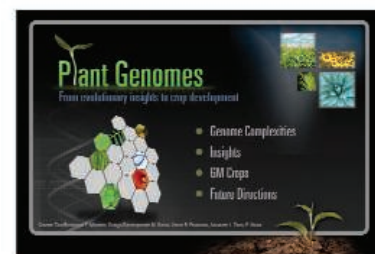
SPECIAL SECTION

Plant Genomes

ONLINE FEATURE: Plant Genomes >>

An interactive presentation featuring informational graphics, video commentary, and an animation.

www.sciencemag.org/plantgenomes/feature.html



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S. Williams

Plant genomics addresses several of the world's most pressing problems.

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Mutation Makes Good Medicine

Gene variant works like heart-sparing drugs in many African Americans.

Sleep Deprivation for Germs

Study suggests new way to target persistent bacteria.

Gene Studies Tell Placenta's Tale

Mother-fetus lifeline evolved from a combination of ancient and new genes.



T. gondii escaping from host cells.

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PERSPECTIVE: Notch Signaling in Osteoblasts

E. Canalis

Notch signaling plays a role in bone remodeling by inhibiting the differentiation of osteoblasts and osteoclasts.

PERSPECTIVE: Back from the Dormant Stage—Second Messenger Cyclic ADP-Ribose Essential for *Toxoplasma gondii* Pathogenicity

A. H. Guse

The protozoan parasite *T. gondii* uses a plant-like signaling pathway to exit host cells.



Research career on the fast track.

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CAREER RESOURCES FOR SCIENTISTS

Young Swedish Scientist Reveals Fast-Track Career Secrets

L. Laursen

By age 35, Thomas Helleday was heading labs in two countries and winning several awards.

Educated Woman, Postdoc Edition, Chapter 15: This Strange, Funny Feeling

M. P. DeWhyse

Could Micella's new feeling be joy?

10 Years Ago This Week: Dysfunctional Advisee-Adviser Relationships

P. Fiske

Students know the nature of an adviser's esteem and the risks of too much candor.



SCIENCE PODCAST

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