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CLIMATE CHANGE

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J. P. Steffensen et al.

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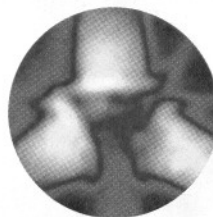
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TECHNICAL COMMENT ABSTRACTS

PLANETARY SCIENCE

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REVIEW

ECONOMICS

Policies Designed for Self-Interested Citizens May Undermine "The Moral Sentiments": Evidence from Economic Experiments

S. Bowles

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BREVIA

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ASTRONOMY

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METEORITICS

The Formation Conditions of Chondrules and Chondrites

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Iron Isotope Fractionation During Magmatic Differentiation in Kilauea Iki Lava Lake

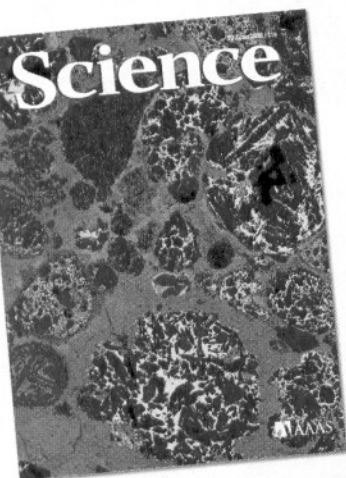
F.-Z. Teng, N. Dauphas, R. T. Helz

Iron isotopes fractionated between crystals and melt during crystallization of a lava lake, despite temperatures exceeding 1000° Celsius, perhaps influenced by differing iron oxidation.

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COVER

False-color image of a section of the Semarkona meteorite. The round objects are chondrules; the large one near the bottom center is about 2 millimeters across. Magnesium-rich minerals (olivine and pyroxene) appear red, sodium-rich glass appears yellow, and the iron-rich material surrounding the chondrules includes matrix (greenish) and sulfides, metal, and oxides (blue). The sodium in the glass suggests that the chondrules formed in extremely dusty environments in the early solar system. See page 1617.

Image: Jeffrey Grossman/USGS

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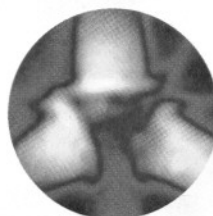
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CLIMATE CHANGE

Natural Variability of Greenland Climate, Vegetation, 1622 and Ice Volume During the Past Million Years

A. de Vernal and C. Hillaire-Marcel

A 1-million-year pollen record shows that the southern part of the Greenland ice sheet melted enough during some past warm episodes so that forests grew.

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CLIMATE CHANGE

Elevation Changes in Antarctica Mainly Determined 1626 by Accumulation Variability

M. M. Helsen et al.

Satellite data since 1995, corrected for the conversion of snow to denser ice, imply that ice sheets grew slowly in the East Antarctic but decreased around the Amundsen Sea.

>> *Perspective p. 1596*

EVOLUTION

Natural Selection Shapes Genome-Wide Patterns of 1629 Copy-Number Polymorphism in *Drosophila melanogaster*

J. J. Emerson, M. Cardoso-Moreira, J. O. Borevitz, M. Long

A high-resolution analysis of gene copy number in *Drosophila* species shows that most variations are deleterious but a few for resistance to toxins are being positively selected.

EVOLUTION

Phylogeny-Aware Gap Placement Prevents Errors in 1632 Sequence Alignment and Evolutionary Analysis

A. Löytynoja and N. Goldman

An algorithm that treats insertions and deletions as distinct events in genomic data improves sequence alignments, allowing more accurate phylogenetic studies.

CELL BIOLOGY

A Molecular Clutch Disables Flagella in the 1636 *Bacillus subtilis* Biofilm

K. M. Blair et al.

One bacterial protein synthesized during the production of a biofilm matrix acts as a clutch to disable the flagellum while the microbe is constrained in the biofilm.

>> *Perspective p. 1599; Science Podcast*

NEUROSCIENCE

Tuned Responses of Astrocytes and Their Influence 1638 on Hemodynamic Signals in the Visual Cortex

J. Schummers, H. Yu, M. Sur

Astrocytes in the visual cortex respond to visual stimuli, showing receptive field properties (response kinetics, orientation, and localization) similar to those of neurons.

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MOLECULAR BIOLOGY

Proliferating Cells Express mRNAs with Shortened 3' 1643 Untranslated Regions and Fewer MicroRNA Target Sites

R. Sandberg et al.

Dividing immune cells tend to synthesize messenger RNAs with shorter 3' regulatory regions, possibly because less control is required over RNA functions.

MICROBIOLOGY

Evolution of Mammals and Their Gut Microbes 1647

R. E. Ley et al.

Genomic sampling of the microbes in the feces of 60 mammals show that herbivores harbor the most diversity and that individuals of the same species have the same flora.

MICROBIOLOGY

Ankyrin Repeat Proteins Comprise a Diverse Family 1651 of Bacterial Type IV Effectors

X. Pan, A. Lührmann, A. Satoh, M. A. Laskowski-Arce, C. R. Roy

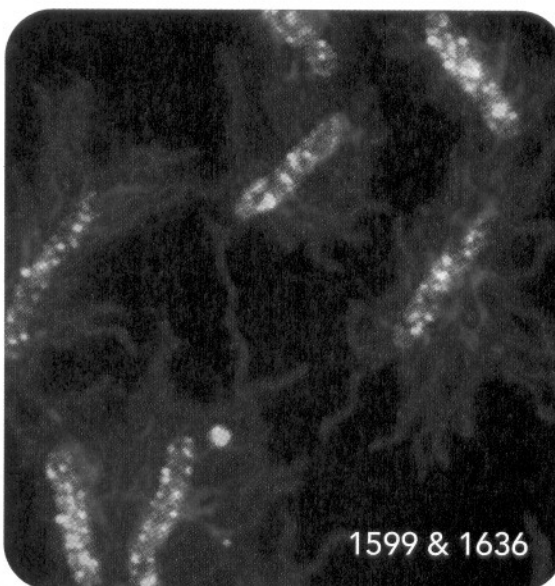
A microbial protein containing ankyrin repeats is injected into host cells through a specialized secretion system where it prevents microtubule-dependent vesicular fusion.

CELL BIOLOGY

Bora and the Kinase Aurora A Cooperatively Activate 1655 the Kinase Plk1 and Control Mitotic Entry

A. Seki, J. A. Coppinger, C.-Y. Jang, J. R. Yates III, G. Fang

Mitosis begins in mammalian cells when a protein accumulates between cell divisions and interacts with a second protein to initiate a cascade of kinase activation.



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