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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www.sciencemag.org  SCIENCE VOL 320  20 JUNE 2008 Published by AAAS
High-Resolution Greenland Ice Core Data Show Abrupt Climate Change Happens in Few Years
J. P. Steffensen et al.
Greenland’s climate flipped to a different state within 1 to 3 years more than once during the last deglaciation.
10.1126/science.1157707

Censoring of Autoreactive B Cell Development by the Pre-B Cell Receptor
R. A. Keenan et al.
A protein that helps newly rearranged antibody chains arrive at the cell surface of immature immune cells is found to help delete cells with potential autoreactivity.
10.1126/science.1157533

Comment on “Athabasca Valles, Mars: A Lava-Draped Channel System”
W. L. Jaeger et al.
full text at www.sciencemag.org/cgi/content/full/320/5883/1588c
Response to Comment on “Athabasca Valles, Mars: A Lava-Draped Channel System”
W. L. Jaeger et al.
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Strong Limit on a Variable Proton-to-Electron Mass Ratio from Molecules in the Distant Universe
M. T. Murphy, V. V. Flambaum, S. Muller, C. Henkel
Absorbed radio emissions from a distant quasar provide an estimate of a fundamental constant, the proton/electron mass ratio, over time and limit its possible variations.
1611

Ionizing neon atoms with light pulses generates shorter light bursts, less than 100 attoseconds long, that can be used to test electron interactions and strong-field theories.
1614

The high sodium content of grains from the early solar system implies that they formed in parts of the solar nebula with unexpectedly high densities of dust, limiting volatilization.
1617

Iron isotopes fractionated between crystals and melt during crystallization of a lava lake, despite temperatures exceeding 1000° Celsius, perhaps influenced by differing iron oxidation.
1620

>> Perspective p. 1600
Astrocytes in the visual cortex respond to visual stimuli, showing receptive field properties (response kinetics, orientation, and localization) similar to those of neurons.

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.

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

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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**CLIMATE CHANGE**

Natural Variability of Greenland Climate, Vegetation, 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.

**EVOLUTION**

Natural Selection Shapes Genome-Wide Patterns of 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.

Phylogeny-Aware Gap Placement Prevents Errors in 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 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.

**NEUROSCIENCE**

Tuned Responses of Astrocytes and Their Influence 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.
A heterotrimeric G protein.

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REVIEW: Dissociation of Heterotrimeric G Proteins in Cells
N. A. Lambert
G proteins may function as activated heterotrimers, as well as dissociated subunits.

PERSPECTIVE: Does Contractile Ca
2+
 Control Calcineurin-NFAT Signaling and Pathological Hypertrophy in Cardiac Myocytes?
S. R. Hauser and J. D. Molkentin
Are calcium signaling pathways in the heart regulated by bulk cytoplasmic calcium or by calcium in specialized microdomains?

PERSPECTIVE: A Cunning Stunt—An Alternative Mechanism of Eukaryotic Translation Initiation
S. J. Morley and M. J. Coldwell
Translation of cellular inhibitor of apoptosis 2 transcripts appears to involve a ribosome shunting mechanism, permitting translation in periods of stress.

Finding opportunities in toxins.

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In Toxicology, Opportunities Abound
B. Vastag
Toxicology encompasses a wide range of disciplines and offers a wide range of jobs.

Tooling Up: What Really Matters in a Job Talk
D. Jensen
The key to giving a good job talk is giving what your audience is looking for.

Training in Academia—and Industry
E. Pain
Physicist Sylvain Schwartz has won acclaim from both the private sector and the ivory tower.

Held-Over Feature: Sustaining Forests in a Changing World
E. Pain
Science Careers reviews career opportunities in forest ecology.

Separate individual or institutional subscriptions to these products may be required for full-text access.
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