**Human-Induced Changes in the Hydrology of the Western United States**

T. P. Barnett et al.

Combining a regional hydrologic and global climate model implies that human-caused CO$_2$ emissions have already greatly changed river flows and snow pack in the western United States.

10.1126/science.1152538

**Asphericity in Supernova Explosions from Late-Time Spectroscopy**

K. Maeda et al.

Spectroscopic signatures show that supernova explosions of stars that have lost their hydrogen envelopes are strongly aspherical and may be jetlike.

10.1126/science.1149437

**High-Resolution Mapping of Crossovers Reveals Extensive Variation in Fine-Scale Recombination Patterns Among Humans**

G. Coop, X. Wen, C. Ober, J. K. Pritchard, M. Przeworski

High-density genotyping of individuals from 82 families shows unexpected variation in the number of meiotic crossovers and in the relative activity of recombination hotspots.

10.1126/science.1151851

**Sequence Variants in the RNF212 Gene Associate with Genomewide Recombination Rate**

A. Kong et al.

A variant of a human gene associated with high rates of recombination in males and low rates in females is an ortholog of a nematode gene essential for recombination.

10.1126/science.1152422

**Languages Evolve in Punctuational Bursts**

Q. D. Atkinson et al.

A study of Bantu, Indo-European, Austronesian, and Polynesian languages shows that up to one-third of their words arose in rapid evolutionary bursts from the predecessor tongue.

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**Widespread Genetic Incompatibility in C. elegans Maintained by Balancing Selection**

H. S. Seidel, M. V. Rockman, L. Kruglyak

Strong natural selection is maintaining multiple alleles of a gene in wild populations of the nematode C. elegans, despite their negative effect on fitness.

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**Single-Molecule Cut-and-Paste Surface Assembly**

S. K. Kufer et al.

An atomic force microscope tip derivatized with DNA can pick up and assemble large molecules bearing DNA handles into specific patterns on a surface in aqueous solution.

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**Electronic Liquid Crystal State in the High-Temperature Superconductor YBa$_2$Cu$_3$O$_{6.45}$**

V. Hinkov et al.

Neutron-scattering measurements suggest that ordering of fluctuating electron spins explains the liquid crystal phases recently seen in some correlated electron systems.

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Measuring the Surface Dynamics of Glassy Polymers 600
Z. Fakhraai and J. A. Forrest
Removal of gold nanospheres dimpling the surface of a polymer film reveals that polymer chains near the surface relax more rapidly than the bulk.
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GEOCHEMISTRY
Abiogenic Hydrocarbon Production at Lost City Hydrothermal Field 604
G. Proskurowski et al.
The abundance of hydrocarbons and isotopic data imply that hydrocarbons are produced chemically from mantle carbon at a cool Atlantic Ocean hydrothermal system.

CLIMATE CHANGE
Prioritizing Climate Change Adaptation Needs for Food Security in 2030 607
D. B. Lobell et al.
Analysis of 12 food-insecure regions for vulnerability to crop failure from climate change indicates that those in southern Africa and south Asia are in particular need of attention.
>> Perspective p. 580

DEVELOPMENTAL BIOLOGY
Oocyte-Specific Deletion of Pten Causes Premature Activation of the Primordial Follicle Pool 611
P. Reddy et al.
In mice, a tumor suppressor commonly mutated in human cancers prevents premature activation of ovarian follicles, allowing them to form oocytes throughout life.
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DEVELOPMENTAL BIOLOGY
The Maternal Nucleolus Is Essential for Early Embryonic Development in Mammals 613
S. Ogushi et al.
After fertilization or somatic cell nuclear transfer, the oocyte’s nucleolus but not the sperm’s is essential for subsequent development.

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Profiling Essential Genes in Human Mammary Cells by Multiplex RNAi Screening 617
J. M. Silva et al.
Cancer Proliferation Gene Discovery Through Functional Genomics 620
M. R. Schlabach et al.
Systematic inhibition of gene expression with RNA interference screening reveals genes essential for growth and survival of tumor cells, potentially leading to new cancer drugs.

IMMUNOLOGY
Cathepsin K–Dependent Toll-Like Receptor 9 Signaling Revealed in Experimental Arthritis 624
M. Asagiri et al.
A lysosomal enzyme normally associated with osteoclasts of the bone has further function in signaling through an innate receptor in immune cells.
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Systemic Leukocyte-Directed siRNA Delivery Revealing Cyclin D1 as an Anti-Inflammatory Target 627
D. Peer, E. J. Park, Y. Morishita, C. V. Carman, M. Shimaoka
Small RNAs are packaged in lipid nanoparticles with antibodies that direct them to specific gut immune cells, where they suppress inflammation by inhibiting a cell-cycle protein.
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BIOCHEMISTRY
Direct Observation of Hierarchical Folding in Single Riboswitch Aptamers 630
W. J. Greenleaf et al.
Optical trapping reveals that activation by adenine stabilizes the weakest helix in a riboswitch, after which secondary and tertiary structures are formed sequentially.
Perspective: Metabotropic Glutamate Receptors and Fragile X Mental Retardation Protein—Partners in Translational Regulation at the Synapse

J. A. Ronesi and K. M. Huber

On the road to protein synthesis–dependent plasticity, FMRP is the brake and mGluRs are the gas.

Events

Plan to attend a meeting related to cell signaling.