COVER
A cotton bollworm larva (*Helicoverpa armigera*) feeds on a cotton boll. Transgenic Bt cotton was designed to resist this and other caterpillar pests. See page 1676.
*Image: Nigel Cattlin/Visuals Unlimited Inc.*

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A High Phase-Space-Density Gas of Polar Molecules
K.-K. Ni et al.
Raman laser irradiation can cool a cloud of KRb molecules to ultralow translational, vibrational, and rotational temperatures, a step toward forming molecular condensates.
10.1126/science.1163861

Innate Immunity in Caenorhabditis elegans Is Regulated by Neurons Expressing NPR-1/GPCR
K. L. Styer et al.
In the nematode Caenorhabditis elegans, sensory neurons surprisingly can inhibit innate immune responses, in part through the mitogen-activated protein kinase signaling pathway.
10.1126/science.1163673

Adipocytes (fat cells) originate from precursor cells that reside within the walls of the blood vessels that feed fat tissue.

Catalytic Conversion of Biomass to Monofunctional Hydrocarbons and Targeted Liquid-Fuel Classes
E. L. Kunkes et al.
A set of two reactors, one that breaks down biomass sugars and a second that directs chain formation, can synthesize various hydrocarbon fuels.
10.1126/science.1159210

The existence of a 700,000-year-old patch of permafrost in sub-Arctic Canada shows that ground ice far from the pole can resist melting during warm intervals.
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81P/Wild 2
T. Nakamura et al.
Stardust samples from a comet, thought to be from the outer solar system, include grains like those in chondrules, primitive grains that formed in the inner solar system.

MICROBIOLOGY
An Inhibitor of FtsZ with Potent and Selective Anti-Staphylococcal Activity 1670
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A small synthetic molecule directed against a microbial protein required for cell division protects mice infected with Staphylococcus aureus from death.

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Can Catch Shares Prevent Fisheries Collapse? 1678
C. Costello, S. D. Gaines, J. Lynham
Global catch statistics since 1950 suggest that fisheries will be half as likely to collapse if fisherman have a sustainability incentive through a guaranteed right of harvest.

DEVELOPMENTAL BIOLOGY
Apoptotic Force and Tissue Dynamics During Drosophila Embryogenesis 1683
Y. Toyama et al.
During development, programmed cellular death within sheets of cells can generate forces that accelerate tissue fusion; a similar process may apply to wound healing.

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Individuals’ views on political issues relate to their physiological reactions to threatening stimuli: Desire to protect their group’s interests correlates with greater reactivity to threat.

ECONOMICS
Parasite Treatment Affects Maternal Investment in Sons T. E. Reed et al.
Mother seabirds that are infected by parasitic nematodes are less able to gather food and feed their fast-growing sons, shifting the sex ratio and affecting population viability.
Mouthful.

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Temblor last May could have activated adjoining fault lines.

SDF-1 bound to CXCR4.

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RESEARCH ARTICLE: Structural Basis of CXCR4 Sulfotyrosine Recognition by the Chemokine SDF-1/CXCL12
The structure of SDF-1 bound to an extracellular domain of CXCR4 illustrates how chemokines recognize receptor sulfotyrosines and helps to identify an inhibitor of leukocyte chemotaxis.

PROTOCOL: Analysis of Signaling Events by Combining High-Throughput Screening Technology with Computer-Based Image Analysis
M. Kodiha, C. M. Brown, U. Stochaj
High-throughput screening and MetaXpress software modules can be adapted to quantify the subcellular localization of fluorescently labeled molecules.

PRESENTATION: Dynamic Visualization of Signaling Activities in Living Cells
Engineered fluorescent reporters allow researchers to follow subcellular activities of signaling components in real time in live cells.

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A. Di Trapani
A science officer at the European Science Foundation describes her journey.