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Lower Malaria Numbers Reflect Better Estimates and a Glimmer of Hope
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Development and Conservation Goals in World Bank Projects
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Apoptosis Turbocharges Epithelial Morphogenesis L. A. Davidson
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Desperately Seeking New Antibiotics D. J. Payne
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Fluorous Tags Unstick Messy Chemical Biology Problems D. P. Curran

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.

EDITORIAL
Science by Norman R. Augustine

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**PHYSICS**

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

**IMMUNOLOGY**

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

**CELL BIOLOGY**

White Fat Progenitor Cells Reside in the Adipose Vasculature
W. Tang et al.
Adipocytes (fat cells) originate from precursor cells that reside within the walls of the blood vessels that feed fat tissue. 10.1126/science.1156232

**CHEMISTRY**

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

**TECHNICAL COMMENT ABSTRACTS**

**GEOLOGY**

Comment on “Age and Evolution of the Grand Canyon Revealed by U-Pb Dating of Water Table–Type Speleothems”
J. Pederson et al.
full text at www.sciencemag.org/cgi/content/full/321/5896/1634b

Response to Comment on “Age and Evolution of the Grand Canyon Revealed by U-Pb Dating of Water Table–Type Speleothems”
V. Polyak, C. Hill, Y. Asmerom
full text at www.sciencemag.org/cgi/content/full/321/5896/1634d

**BREVIA**

**CLIMATE CHANGE**

Ancient Permafrost and a Future, Warmer Arctic
D. G. Froese et al.
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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M. A. Busche et al.
Some pathogens synthesize the essential vitamin menaquinone by an unusual pathway, presenting a potential target for new antibiotics. >> Perspective p. 1644

MICROBIOLOGY
An Alternative Menaquinone Biosynthetic Pathway Operating in Microorganisms
T. Hiratsuka et al.
Some pathogens synthesize the essential vitamin menaquinone by an unusual pathway, presenting a potential target for new antibiotics. >> Perspective p. 1644

ECOLOGY
Can Catch Shares Prevent Fisheries Collapse?
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. >> News story p. 1619

EVOLUTION
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.

DEVELOPMENTAL BIOLOGY
Apoptotic Force and Tissue Dynamics During Drosophila Embryogenesis
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. >> Perspective p. 1641

MEDICINE
Clusters of Hyperactive Neurons Near Amyloid Plaques in a Mouse Model of Alzheimer’s Disease
M. A. Busche et al.
In a mouse model of Alzheimer’s disease, neurons close to the characteristic deposits of amyloid show high activity, in contrast to the overall reduction in brain function.

NEUROSCIENCE
Reward-Predictive Cues Enhance Excitatory Synaptic Strength onto Midbrain Dopamine Neurons
G. D. Stuber et al.
When a rat learns to associate a cue with a reward, dopamine-containing neurons in the midbrain acquire an enhanced response to that cue through the action of glutamate.

MOLECULAR BIOLOGY
Molecular Coupling of Xist Regulation and Pluripotency
P. Navarro et al.
X chromosome inactivation in stem cells is reversed, a step in allowing them to become pluripotent, when three factors repress the inactivation RNA.
Mouthful.

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Speaking Without Sound
Facial muscles tell us whether we are pronouncing words correctly.

No Glee for Grandma?
Brains of the young and old process rewards in different ways.

China Quake No Stress Reliever
Temblor last May could have activated adjoining fault lines.

SCIENCE SIGNALING
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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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