COVER
Giraffes eye a smorgasbord of *Acacia* at the Mpala Research Centre in Kenya. Large herbivores such as giraffes are key to maintaining a mutually beneficial relationship between ants and *Acacia* in an East African ecosystem. See page 192.

Photo: Amy Wolf

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VIROLOGY
Identification of Host Proteins Required for HIV Infection Through a Functional Genomic Screen
A. L. Brass et al.
An RNAi screen identified 237 new and 38 known human proteins required for HIV infection, including ones used in Golgi transport and in viral integration and transcription. 10.1126/science.1152725

GENETICS
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. 10.1126/science.1151107

PHYSICS
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. 10.1126/science.1152309

PHYSICS
Observation of the Spin Hall Effect of Light via Weak Measurements
O. Hosten and P. Kwiat
Displacement of light at an air-glass interface depends on its polarization, showing that photons have a spin Hall effect comparable to that seen for electrons. 10.1126/science.1152697

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P. W. Boyd and D. Mackie
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N. Cassar et al.
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GEOPHYSICS
Widespread Triggering of Nonvolcanic Tremor in California
J. Gomberg et al.
A large Alaskan earthquake triggered tremors along the San Andreas and other strike-slip faults in California, showing that this process is not specific to subduction zones. 10.1126/science.1152694

REPORTS
ASTRONOMY
Stellar Feedback in Dwarf Galaxy Formation
S. Mashchenko, J. Wadsley, H. M. P. Couchman
Simulations show that stellar winds and material expelled from supernovae alter the gravitational potential of dwarf galaxies, perhaps explaining their dark matter cores.

PHYSICS
Superconducting Vortices in CeCoIn$_5$: Toward the Pauli-Limiting Field
A. D. Bianchi et al.
The response of CeCoIn$_5$ differs from that of other superconductors and from accepted theory because its superconducting state approaches a quantum critical point.

CHEMISTRY
Self-Assembled Water-Soluble Nucleic Acid Probe Tiles for Label-Free RNA Hybridization Assays
Y. Ke, S. Lindsay, Y. Chang, Y. Liu, H. Yan
Large DNA scaffolds with multiple pairs of single-strand overhangs can capture specific RNA molecules for subsequent label-free detection by atomic force microscopy.
BIOCHEMISTRY

Designed Protein-Protein Association
D. Grueninger et al.
A few changes in the side chains of amino acids at the contact interfaces of natural enzymes may suffice to induce higher-order oligomers. >> Perspective p. 165

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Membrane Phosphatidylserine Regulates Surface Charge and Protein Localization
A fluorescent tag specific for a negatively charged lipid shows that its higher concentration in endosomes and lysosomes attracts cationic proteins within the cell.

PSYCHOLOGY

The Limits of Counting: Numerical Cognition Between Evolution and Culture
S. Beller and A. Bender
Several Pacific-island languages with few words for numbers may be derived from more sophisticated and abstract counting systems rather than being their precursors.

IMMUNOLOGY

Recognition of a Ubiquitous Self Antigen by Prostate Cancer–Infiltrating CD8+ T Lymphocytes
P. A. Savage et al.
In mice, a common histone protein that coats DNA is unexpectedly detected within prostate tumors by the immune system, suggesting a potential therapeutic approach.

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MEDICINE

Endothelial Progenitor Cells Control the Angiogenic Switch in Mouse Lung Metastasis
D. Gao et al.
Experiments in mice show that certain bone marrow cells promote the development of lung cancers by helping blood vessels form within the tumors. >> Perspective p. 163

IMMUNOLOGY

Dendritic Cell–Induced Memory T Cell Activation in Nonlymphoid Tissues
L. M. Wakim et al.
Immune cells, normally produced in lymphoid organs, can also be activated in the nervous system in response to a viral challenge.

MOLECULAR BIOLOGY

DNA Oxidation as Triggered by H3K9me2
Demethylation Drives Estrogen-Induced Gene Expression
B. Perillo et al.
Estrogens trigger histone demethylation, which elicits a local DNA oxidative burst that guides initial assembly of the transcription/repair complex.

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ECOLOGY

Breakdown of an Ant-Plant Mutualism Follows the Loss of Large Herbivores from an African Savanna
T. M. Palmer et al.
Excluding mammalian herbivores from a savanna ecosystem decreased ant colonies on the resident Acacia trees, leading to attack by beetles and unexpected tree mortality.

>> News story p. 145

PALEOCLIMATE

Isotopic Evidence for Glaciation During the Cretaceous Supergreenhouse
A. Bornemann et al.
A glacial interval lasting about 200,000 years interrupted the warm Late Cretaceous climate and produced ice sheets half as large as the modern Antarctic Ice Sheet.

>> News story p. 142

GEOPHYSICS

Tidal Modulation of Nonvolcanic Tremor
J. L. Rubinstein et al.
Small tremors and slow slip along the Cascadia subduction zone pulse every 12.4 and 24 to 25 hours, implying that lunar tides are driving this activity along weak faults.

>> Perspective p. 166; Brevia p. 173

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Imaging Nucleophilic Substitution Dynamics
J. Mikosch et al.
A precisely controlled gas-phase collision experiment unveils the quantum mechanical details underlying the classic organic chemical reaction of Cl− with CH3I. >> Perspective p. 168

CELL BIOLOGY

Charge and Protein Localization of Membrane Phosphatidylserine
A fluorescent tag specific for a negatively charged lipid shows that its higher concentration in endosomes and lysosomes attracts cationic proteins within the cell.

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Estrogens trigger histone demethylation, which elicits a local DNA oxidative burst that guides initial assembly of the transcription/repair complex.
Notch and Integrin Affinity—A Sticky Situation
A. Karsan
Notch-dependent activation of R-Ras reverses H-Ras–mediated suppression of integrin activity.

An Emerging Picture of Synapse Formation—A Balance of Two Opposing Pathways
F. Ono
A dispersing and a clustering pathway for acetylcholine receptors converge on the postsynaptic protein rapsyn in skeletal muscle.

Biofuels on a Big Scale
Switchgrass produces five times as much energy as required to make it into a crop-based fuel.

Evolution: Read All About It!
New booklet aims to bring Darwin’s theory to the masses.

Third Gene Copy Is a Charm
A gene triplicated in Down syndrome may provide cancer protection.

Receptor clustering at the neuromuscular junction.

Future fuel?

Biofuels on a Big Scale
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Third Gene Copy Is a Charm
A gene triplicated in Down syndrome may provide cancer protection.

Receptor clustering at the neuromuscular junction.

Following childhood dreams to a career.

Special Feature: Changing Careers, Following Dreams
K. Travis
Moving forward can mean looking back at childhood fascinations or what first engaged your love for science.

Finding the Way Back to a First (Career) Love
S. Webb
Like rekindling an old romance, the pursuit of an old interest can be exciting and rewarding.

The Accidental Paleontologist
E. Quill
Mike Taylor’s fascination with sauropods led him to do a Ph.D.

In Person: A Career Home Run
K. Woolner
A software developer’s hobby in baseball statistics landed him a job with a major league baseball team.
Science 319 (5860), 135-221.