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The Spread of Ras Activity Triggered by Activation of a Single Dendritic Spine
C. D. Harvey, R. Yasuda, H. Zhong, K. Svoboda
When strengthened, individual synapses on dendritic spines contain an activated small regulatory protein that spreads to nearby spines, possibly altering their sensitivity.
10.1126/science.1159675

PHYSICS
Entangled Images from Four-Wave Mixing
V. Boyer, A. M. Marino, R. C. Pooser, P. D. Lett
Passing light through a warm cloud of rubidium atoms creates quantum mechanically entangled twin images.
10.1126/science.1158275

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BIOCHEMISTRY
Micelles Protect Membrane Complexes from Solution to Vacuum
N. P. Barrera, N. Di Bartolo, P. J. Booth, C. V. Robinson
Gas-phase lipid micelles protect a large complex of membrane proteins, allowing its subunit composition and ligand binding to be assessed by mass spectrometry.
10.1126/science.1159292

ASTRONOMY
Supernova Shock Breakout from a Red Supergiant
K. Schawinski et al.
A burst of ultraviolet light reveals the initial expansion of a star leading to a supernova and identifies the star as a red supergiant.
10.1126/science.1160456

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An in Vivo Map of the Yeast Protein Interactome
K. Tarassov et al.
A method that identifies pairs of proteins that are 8 nanometers apart produces a map of interacting proteins in living yeast, finding known and previously unknown networks.

BIOCHEMISTRY
Recognition Dynamics Up to Microseconds Revealed from an RDC-Derived Ubiquitin Ensemble in Solution
O. F. Lange et al.
In solution, ubiquitin assumes all conformations seen in crystal structures of its complexes, indicating that it binds by conformational selection rather than induced fit.

PLANT SCIENCE
Germination, Genetics, and Growth of an Ancient Date Seed
S. Sallon et al.
A 2000-year-old date seed—recovered from archaeological excavations near the Dead Sea in Israel—successfully germinated and grew.

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An in Vivo Map of the Yeast Protein Interactome
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Biochemistry
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PHYSICS
Probing Cold Dense Nuclear Matter
R. Subedi et al.
Electron-beam experiments reveal that some neutrons within $^{22}\text{C}$ nuclei tend to form close, dynamical pairs with protons but that pairs of the same particle type are rare.

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Laser-Induced Electron Tunneling and Diffraction
M. Meckel et al.
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CHEMISTRY
Electrical Resistance of Long Conjugated Molecular Wires
S. H. Choi, B. Kim, C. D. Frisbie
The stepwise synthesis of molecules of increasing length on a gold substrate reveals a change in electron transport from tunneling to hopping as molecule length increases.

ATMOSPHERIC SCIENCE
The Impact of Stratospheric Ozone Recovery on the Southern Hemisphere Westerly Jet
S.-W. Son et al.
Models show that as stratospheric ozone recovers, westerly tropospheric winds at high southern latitudes should weaken, not strengthen as was thought, affecting Antarctic climate.

CLIMATE CHANGE
Evidence for Upwelling of Corrosive "Acidified" Water onto the Continental Shelf
R. A. Feely et al.
As a result of anthropogenic $\text{CO}_2$ uptake, corrosive seawater undersaturated with calcium carbonate shoaled on the continental shelf of western North America in 2007.

MOLECULAR BIOLOGY
Regulation of Hepatic Lipogenesis by the Transcription Factor XBP1
In mice, a transcription factor known to participate in secretion is also necessary for induction of lipid synthesis by carbohydrates in the liver. >> Perspective p. 1433

ECOLOGY
Animal Versus Wind Dispersal and the Robustness of Tree Species to Deforestation
D. Montoya, M. A. Zavala, M. A. Rodriguez, D. W. Purves
In Spanish forests, tree species with seeds that are dispersed by animals are more resilient in a fragmented forest than those with wind-dispersed seeds.

DEVELOPMENTAL BIOLOGY
VelB/VeA/LaeA Complex Coordinates Light Signal with Fungal Development and Secondary Metabolism
Ö. Bayram et al.
The multiprotein velvet complex in the fungus Aspergillus nidulans coordinates light-responsive development and the generation of secondary metabolites such as antibiotics and toxins.

NEUROSCIENCE
Transfer of Learning After Updating Training Mediated by the Striatum
E. Dahlén, A. S. Neely, A. Larsson, L. Bäckman, L. Nyberg
Individuals who become better at a letter recognition test through practice also improve at a different task, even without practice, when both tasks utilize the same brain region.

SPECIAL FEATURE
Careers in Forest Ecology
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Sustaining Forests in a Changing World
A Self-Made Climber
Measuring the Impact of Invasive Plants
An Adventurous Physicist

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SPECIAL CONTENT
Forests in Flux

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Science Careers Podcast: An Interview With Catherine Cardelús
K. Travis
The young rainforest ecologist talks about what it’s like to work in the forest canopy.

SCIENCE ONLINE FEATURE
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An accompaniment to this week’s special section on the future of forests in light of climate change and human activity.