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Forests in Flux

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Critical Time for African Rainforests
Letting 1000 Forests Bloom

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Design Changes Will Increase ITER Reactor’s Cost
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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.

**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.

**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.

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I. J. Winograd and E. H. Roseboom Jr.

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R. L. Revesz and M. A. Livermore, reviewed by O. H. Pilkey

**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.

**RESEARCH ARTICLES**

**CELL BIOLOGY**
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.

**BREVIA**
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**LETTERS**
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CELL SIGNALING
The Rag GTPases Bind Raptor and Mediate Amino Acid Signaling to mTORC1
Y. Sancak et al.
Nutrients, specifically amino acids, are sensed by small guanosine triphosphatases, which bind to a signaling complex, moving it close to the nucleus where it initiates cell growth.

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.

MOLECULAR BIOLOGY
Activation of the Cellular DNA Damage Response in the Absence of DNA Lesions
E. Soutoglou and T. Misteli
Protein complexes that usually assemble on and repair damaged DNA can form at undamaged sites to halt the cell cycle if several of the proteins are first tethered there.

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.
Coral dissolve in acidic waters.

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T. F. Franke
Multiple interacting proteins modulate the activity of the serine/threonine kinase Akt.

PERSPECTIVE: pVHL—A Multipurpose Adaptor Protein
I. J. Frew and W. Krek
The von Hippel-Lindau tumor suppressor controls transcription-dependent and -independent cellular processes.

PODCAST
E. M. Adler and A. M. VanHook
Microvesicles carrying an oncogenic form of the epidermal growth factor receptor provide a mechanism for lateral spread of the malignant phenotype.

GLOSSARY
Find out what ASC, ChIP, and SNS mean in the world of cell signaling.

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
VIDEO: Forests in Flux
An accompaniment to this week’s special section on the future of forests in light of climate change and human activity.

SCIENCE PODCAST
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Download the 13 June special Science Podcast on forests to hear about seed dispersal and tree resilience, growth of an ancient date seed, preserving rainforest biodiversity, and more.
Editor's Summary

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