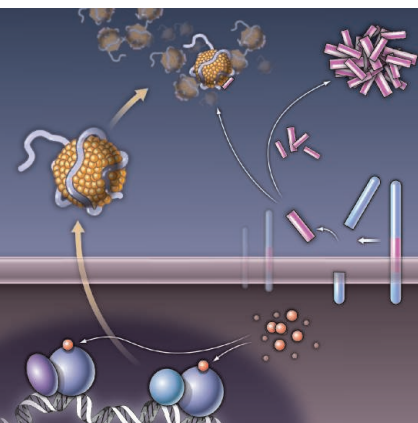


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COVER

Spring sun lights up signaling pathways. In plants, the UVR8 protein senses ultraviolet-B (UV-B) wavelengths in sunlight, triggering changes in growth and development, including the production of a protective chemical sunscreen. Pyramids of tryptophan rings intrinsic to UVR8 create a built-in light switch; no separate chromophore is required. Understanding how plant growth varies with changes in sunlight becomes more important as we adapt to climate change. See page 1492.

Photo: *iStockphoto.com*

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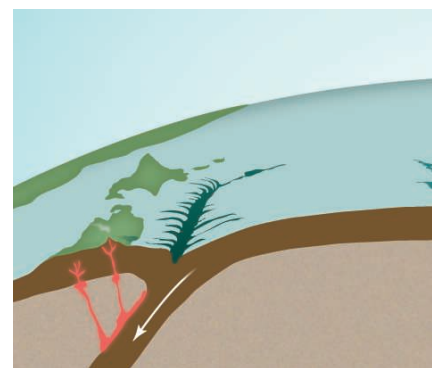
BREVIA

- 1463** Seroevidence for H5N1 Influenza Infections in Humans: Meta-Analysis
T. T. Wang et al.
One to two percent of 14,000 people tested in 20 studies showed evidence of prior H5N1 infection.
>> See all H5N1 coverage online at http://scim.ag/_h5n1

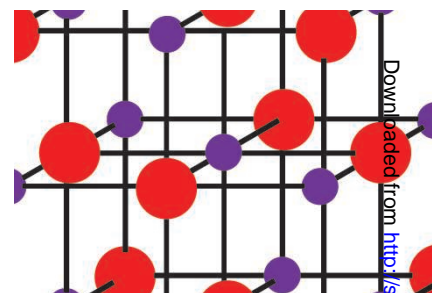
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Density functional calculations predict that some binary actinide compounds support an exotic electron-correlated state.
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A ferromagnetic and superconductor composite structure can shield (cloak) a magnetic field without causing any distortion.
- 1468** Renewable Cathode Materials from Biopolymer/Conjugated Polymer Interpenetrating Networks
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A robust catalyst circumvents the need to isolate a common reagent that is toxic and explosive.
- 1474** Energy Capture from Thermolytic Solutions in Microbial Reverse-Electrodialysis Cells
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- 1486** Specialization and Rarity Predict Nonrandom Loss of Interactions from Mutualist Networks
M. A. Aizen et al.
In the sierras of Argentina, specialized mutualistic plant-pollinator relationships increase vulnerability to habitat loss.
- 1489** Evolutionary Conservation of Species' Roles in Food Webs
D. B. Stouffer et al.
How species are embedded in food webs is an intrinsic species attribute and is conserved across diverse ecological communities.
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- 1492** Plant UVR8 Photoreceptor Senses UV-B by Tryptophan-Mediated Disruption of Cross-Dimer Salt Bridges
J. M. Christie et al.
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A protein that is highly expressed in oocytes regulates meiosis, genomic integrity, and female fertility.
- 1499** *Trim28* Is Required for Epigenetic Stability During Mouse Oocyte to Embryo Transition
D. M. Messerschmidt et al.
In early mouse embryos, the loss of a single maternal gene results in lethal phenotypic and epigenetic variability.
- 1503** ApoE-Directed Therapeutics Rapidly Clear β -Amyloid and Reverse Deficits in AD Mouse Models
P. E. Cramer et al.
Bexarotene counters the effects of neurodegenerative disease in mice.
>> Perspective p. 1447
- 1506** Long-Range-Projecting GABAergic Neurons Modulate Inhibition in Hippocampus and Entorhinal Cortex
S. Melzer et al.
Long-range inhibitory projections bidirectionally couple brain regions that play a role in spatial learning and memory.
- 1510** Glucocorticoids Can Induce PTSD-Like Memory Impairments in Mice
N. Kaouane et al.
The infusion of a stress hormone produces fear responses to cues that were not associated with the traumatic event itself.
- 1513** Generation of a Synthetic Memory Trace
A. R. Garner et al.
The brains of transgenic mice incorporate experimentally generated neural activity into a memory trace.
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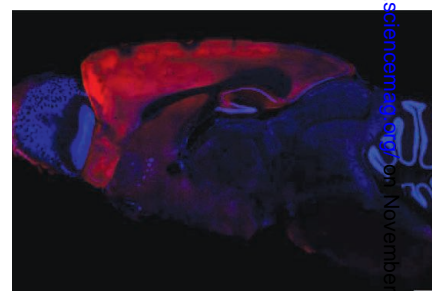
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Topography of the Northern Hemisphere of Mercury from MESSENGER Laser Altimetry

M. T. Zuber et al.

Mercury's topography indicates sustained geophysical activity for most of the planet's geological history.
10.1126/science.1218805

Gravity Field and Internal Structure of Mercury from MESSENGER

D. E. Smith et al.

Mercury's outer solid shell is denser than expected, suggesting a deep reservoir of high-density material, possibly iron-sulfur.
10.1126/science.1218809

A Lineage of Myeloid Cells Independent of Myb and Hematopoietic Stem Cells

C. Schulz et al.

In mice, a population of tissue-resident macrophages arises independently of bone marrow-derived stem cells.
10.1126/science.1219179

Microbial Exposure During Early Life Has Persistent Effects on Natural Killer T Cell Function

T. Olszak et al.

Early exposure of germ-free mice to microbes keeps later inflammation in check by modulating immune cells.
10.1126/science.1219328

>> [News story p. 1428](#); [Science Podcast](#)

Enantioselective C-H Crotylation of Primary Alcohols via Hydrohydroxyalkylation of Butadiene

J. R. Zbieg et al.

A catalyst facilitates complex carbon-carbon bond formation using a bulk commodity feedstock compound.
10.1126/science.1219274

TECHNICAL COMMENTS

Comment on "Productivity Is a Poor Predictor of Plant Species Richness"

X. Pan et al.

Full text at www.sciencemag.org/cgi/content/ful/335/6075/1441-a

Comment on "Productivity Is a Poor Predictor of Plant Species Richness"

J. D. Fridley et al.

Full text at www.sciencemag.org/cgi/content/ful/335/6075/1441-b

Response to Comments on "Productivity Is a Poor Predictor of Plant Species Richness"

J. B. Grace et al.

Full text at www.sciencemag.org/cgi/content/ful/335/6075/1441-c

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A study finds brown eyes and dusky skin in human relatives.

http://scim.ag/Neandertals_Eyes

Insight Into a Shocking Therapy for Depression

An imaging study reveals why jolting patients with electricity can lift mood.

http://scim.ag/Depression_Therapy

Enzyme 'Melts' Cancer Drug Barrier

Breaking down the tough matrix around pancreatic tumors makes chemotherapy work better in mice.

http://scim.ag/Drug_Barrier

SCIENCE SIGNALING

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The Signal Transduction Knowledge Environment

20 March issue: <http://scim.ag/ss032012>

RESEARCH ARTICLE: Cellular Inhibitors of Apoptosis Are Global Regulators of NF- κ B and MAPK Activation by Members of the TNF Family of Receptors

E. Varfolomeev et al.

Signaling downstream of tumor necrosis factor family receptors hinges on the presence or absence of c-IAP proteins.

RESEARCH ARTICLE: Cannabinoids Induce Pancreatic β -Cell Death by Directly Inhibiting Insulin Receptor Activation

W. Kim et al.

Activation of cannabinoid 1 receptors prevents insulin receptors from promoting β -cell survival in the pancreas.

PERSPECTIVE: The Structure of the TLR5-Flagellin Complex—A New Mode of Pathogen Detection, Conserved Receptor Dimerization for Signaling

J. Lu and P. D. Sun

TLR5 exhibits a distinct ligand-binding mechanism compared with those used by other TLRs.

EVENTS

Plan to attend a signaling-relevant meeting; six new meetings added since February.

GLOSSARY

Find out what p70S6K, Deptor, and PRAS40 mean in the world of cell signaling.

SCIENCE CAREERS

www.sciencereers.org/career_magazine

Free Career Resources for Scientists

Experimental Error: How to Write Like a Scientist

A. Ruben

Why do we require scientists to write badly?

http://scim.ag/EE_Writing

Enhance Your Career With Leadership Skills

S. A. Holgate

It's important to begin building leadership skills even before you take on a managerial role.

<http://scim.ag/EnhanceLeadership>

Career Q&A: Myron Cohen

B. Mole

The infectious disease expert and recipient of *Science's* 2011 Breakthrough of the Year award reflects on his career and keys to success.

http://scim.ag/QA_MyronCohen

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Integrating Medicine and Science

21 March issue: <http://scim.ag/stm032112>

RESEARCH ARTICLE: Characterization of Circulating Endothelial Cells in Acute Myocardial Infarction

S. Damani et al.

Features of endothelial cells in blood samples may eventually permit prediction of atherosclerotic plaque rupture events.

RESEARCH ARTICLE: Prostaglandin D₂ Inhibits Hair Growth and Is Elevated in Bald Scalp of Men with Androgenetic Alopecia

L. A. Garza et al.

Prostaglandin D₂ inhibits hair growth through its receptor, GPR44, and this pathway could serve as a new target for developing treatments for male pattern baldness.

RESEARCH ARTICLE: Restoring Methicillin-Resistant *Staphylococcus aureus* Susceptibility to β -Lactam Antibiotics

C. M. Tan et al.

Methicillin-resistant *Staphylococcus aureus* (MRSA) infection can be treated effectively by combining a β -lactam antibiotic with a drug that targets FtsZ.

PERSPECTIVE: Merging Systems Biology with Pharmacodynamics

R. Iyengar et al.

Enhanced pharmacodynamic models combine favorable features of systems biology and traditional models and may form the basis of precision medicine.

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