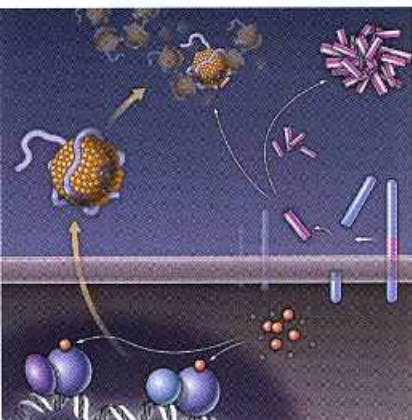




page 1444



pages 1447 & 1503

EDITORIAL

- 1409 America's Community Colleges
Judy C. Miner
>> *Science Podcast*

NEWS OF THE WEEK

- 1422 A roundup of the week's top stories

NEWS & ANALYSIS

- 1425 Seeking Cures for North Korea's Environmental Ills
- 1426 A Vision of How Mouse Vision Can Reveal Consciousness' Secrets
- 1428 Gut Microbes Keep Rare Immune Cells in Line
>> *Science Express Report by T. Olszak et al.*
- 1429 Field Biologists Cry Foul Over Ban

NEWS FOCUS

- 1430 A Flapping of Wings
It's a Bird, It's a Plane, It's a ... Spy?
>> *Science Podcast*
- 1434 Materials Scientists Look to a Data-Intensive Future
- 1436 Learning How to NOT Make Your Own Earthquakes

LETTERS

- 1439 Finding a Good Research Question, in Theory
N. Bodemer and A. Ruggeri
Science in Nepal Needs Neighborly Aid
U. B. Shrestha
India Lacks Scientific Leadership
P. M. Bhargava
Response
C. N. R. Rao

- 1441 TECHNICAL COMMENT ABSTRACTS

BOOKS ET AL.

- 1443 American Genesis
J. P. Moran, reviewed by T. Burnett
- 1444 A History of the World in 100 Objects
N. MacGregor

EDUCATION FORUM

- 1445 Entrepreneurship Training for the Developing World
I. Z. Quadir
>> *Science Podcast*

PERSPECTIVES

- 1447 Old Drug, New Hope for Alzheimer's Disease
W. J. Strittmatter
>> *Report p. 1503*
- 1448 At the Bottom of the Oceanic Plate
H. Kawakatsu
>> *Report p. 1480*
- 1449 Keystones in a Tangled Bank
T. M. Lewinsohn and L. Cagnolo
>> *Reports pp. 1486 and 1489*
- 1451 How Plants See the Invisible
K. H. Gardner and F. Correa
>> *Report p. 1492*
- 1452 The Hunters Did It
M. McGlone
>> *Report p. 1483*
- 1454 Searching for a Better Thermal Battery
I. Gur et al.
- 1455 The Imaginary Mind of a Mouse
R. G. M. Morris and T. Takeuchi
>> *Report p. 1513*
- 1457 Retrospective: Oscar Miller (1925–2012)
S. McKnight et al.

REVIEW

- 1458 Photoacoustic Tomography: In Vivo Imaging from Organelles to Organs
L. V. Wang and S. Hu



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

DEPARTMENTS

- 1405 This Week in Science
- 1410 Editors' Choice
- 1412 Science Staff
- 1517 New Products
- 1518 Science Careers

BREVIA

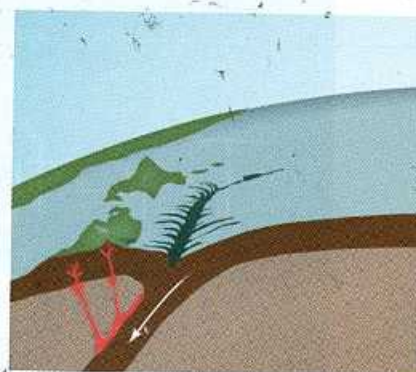
- 1463 **Seroevidence for H5N1 Influenza Infections in Humans: Meta-Analysis**
T. T. Wang et al.
 One to two percent of 14,000 people tested in 20 studies showed evidence of prior H5N1 infection.
 >> See all H5N1 coverage online at http://scim.ag/_h5n1

REPORTS

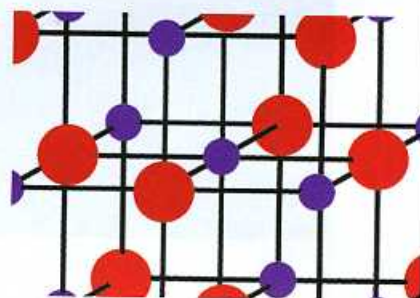
- 1464 **Actinide Topological Insulator Materials with Strong Interaction**
X. Zhang et al.
 Density functional calculations predict that some binary actinide compounds support an exotic electron-correlated state.
- 1466 **Experimental Realization of a Magnetic Cloak**
F. Gömöry et al.
 A ferromagnetic and superconductor composite structure can shield (cloak) a magnetic field without causing any distortion.
- 1468 **Renewable Cathode Materials from Biopolymer/Conjugated Polymer Interpenetrating Networks**
G. Milczarek and O. Inganäs
 Lignin derivatives that can be sourced from paper-industry waste are examined as a battery cathode component.
- 1471 **Iron-Catalyzed Cyclopropanation in 6 M KOH with in Situ Generation of Diazomethane**
B. Morandi and E. M. Carreira
 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**
R. D. Cusick et al.
 Thermally induced salt gradients could augment the electricity generated by microbial fuel cells from wastewater.
- 1477 **Silicon Isotope Evidence Against an Enstatite Chondrite Earth**
C. Fitoussi and B. Bourdon
 Earth accreted from materials with a heterogeneous mix of chondritic meteorite compositions.
- 1480 **The Gutenberg Discontinuity: Melt at the Lithosphere-Asthenosphere Boundary**
N. Schmerr
 Analysis of seismic waves suggests the presence of thin layers of melted rock below the Pacific Ocean lithosphere.
 >> Perspective p. 1448
- 1483 **The Aftermath of Megafaunal Extinction: Ecosystem Transformation in Pleistocene Australia**
S. Rule et al.
 The extinction of megafauna 40,000 years ago after the arrival of humans led to major changes in vegetation and fire regimes.
 >> Perspective p. 1452

- 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.
 >> Perspective p. 1449
- 1492 **Plant UVR8 Photoreceptor Senses UV-B by Tryptophan-Mediated Disruption of Cross-Dimer Salt Bridges**
J. M. Christie et al.
 A tryptophan pyramid allows a dimeric protein to perceive ultraviolet light without an additional chromophore.
 >> Perspective p. 1451
- 1496 **MARF1 Regulates Essential Oogenic Processes in Mice**
Y.-Q. Su et al.
 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.
 >> Perspective p. 1455

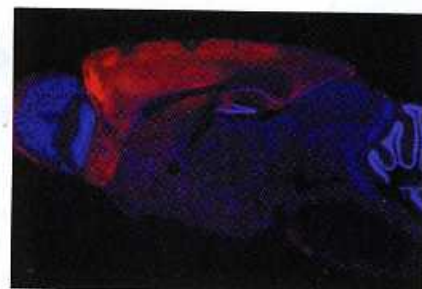
CONTENTS continued >>



pages 1448 & 1480



page 1464



pages 1455 & 1513