

SPECIAL SECTION

## Disease Prevention

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*R. J. Sampson*  
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### COVER

A vending machine filled with healthy substitutes for highly processed foods. Affluence paved the way for technology and medicines to combat infection, but even well-off nations have communities that are increasingly plagued by noncommunicable diseases, including cancer, type 2 diabetes, and Alzheimer's disease. Addressing this huge prospective burden of long-term disease is a priority in the design of a new generation of preventative strategies, including healthier eating. See our special section beginning on page 1466.

Image: Mike Kemp/Getty Images

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*J. Ludwig et al.*  
 Moving from a poor to a less poor residential environment makes people feel good for a long time.  
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## REPORTS

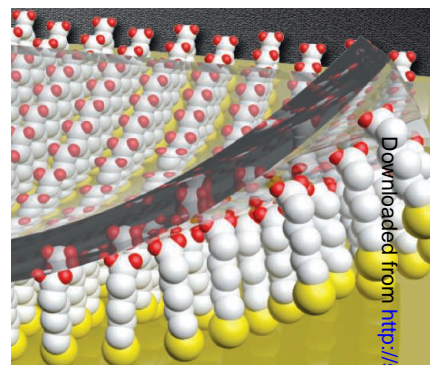
- 1511 Kepler-47: A Transiting Circumbinary Multiplanet System**  
*J. A. Orosz et al.*  
 Data from the Kepler space telescope reveal two small planets orbiting a pair of two low-mass stars.
- 1514 Quantum-Enhanced Optical-Phase Tracking**  
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 A quantum mechanical technique is developed to enhance the phase tracking of photons.
- 1517 Subtractive Patterning via Chemical Lift-Off Lithography**  
*W.-S. Liao et al.*  
 Oxidized silicone-rubber stamps can pattern bare regions on gold surfaces by removing hydroxyl-terminated alkane thiols.  
 >> *Perspective p. 1459*
- 1521 Pulsating Tubules from Noncovalent Macrocycles**  
*Z. Huang et al.*  
 Nanoscale tubes expand and contract with temperature changes through loose association of their constituent building blocks.  
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- 1526 A Crystalline Singlet Phosphinonitrene: A Nitrogen Atom–Transfer Agent**  
*F. Dielmann et al.*  
 A phosphorus fragment supports an otherwise uncoordinated nitrogen atom in a stable motif previously seen only with metals.
- 1529 A Fully Size-Resolved Perspective on the Crystallization of Water Clusters**  
*C. C. Pradzynski et al.*  
 Infrared spectroscopy of water clusters of increasing size indicates the onset of an ice-like structure at around 275 molecules.

- 1532 Structural Basis for Microtubule Binding and Release by Dynein**  
*W. B. Redwine et al.*  
 The molecular motor dynein uses conformational changes within its microtubule-binding domain to modulate track affinity.
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- 1546 Unicellular Cyanobacterium Symbiotic with a Single-Celled Eukaryotic Alga**  
*A. W. Thompson et al.*  
 A nitrogen-fixing cyanobacterium that lacks photosynthesis and the tricarboxylic acid cycle possesses a tiny phytoplankton symbiont.
- 1550 Disruption of Reconsolidation Erases a Fear Memory Trace in the Human Amygdala**  
*T. Agren et al.*  
 Interfering with memory formation at the right moment removes the signature of fear memories in human brain imaging studies.
- 1553 Acute Gastrointestinal Infection Induces Long-Lived Microbiota-Specific T Cell Responses**  
*T. W. Hand et al.*  
 Enteric infections induce lasting adaptive immunity against commensal bacteria that may play a role in intestinal problems.

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## SCIENCEONLINE

## SCIENCEEXPRESS

[www.scienceexpress.org](http://www.scienceexpress.org)

### Elemental Mapping by Dawn Reveals Exogenic H in Vesta's Regolith

*T. H. Prettyman et al.*

10.1126/science.1225354

### Pitted Terrain on Vesta and Implications for the Presence of Volatiles

*B. W. Denevi et al.*

Analysis of data from the Dawn spacecraft implies that asteroid Vesta is rich in volatiles.

10.1126/science.1225374

### A Golden Spike for Planetary Science

*R. P. Binzel*

10.1126/science.1228328

### Detecting Causality in Complex Ecosystems

*G. Sugihara et al.*

A new method, based on nonlinear state space reconstruction, can distinguish causality from correlation.

10.1126/science.1227079

### Genomic Variation in Seven Khoe-San Groups Reveals Adaptation and Complex African History

*C. M. Schlebusch et al.*

Cutting-edge genomic approaches test hypotheses about the roots of human history in southern African indigenous populations.

10.1126/science.1227721

### Germ Cell Migration Across Sertoli Cell Tight Junctions

*B. E. Smith and R. E. Braun*

Syncytial germ cell chains span a network of transient compartments to cross the blood-testis barrier in adult mice.

10.1126/science.1219969

## TECHNICALCOMMENTS

### Comment on "A Common Pesticide Decreases Foraging Success and Survival in Honey Bees"

*J. E. Cresswell and H. M. Thompson*

Full text at [www.sciencemag.org/cgi/content/full/337/6101/1453-b](http://www.sciencemag.org/cgi/content/full/337/6101/1453-b)

### Response to Comment on "A Common Pesticide Decreases Foraging Success and Survival in Honey Bees"

*M. Henry et al.*

Full text at [www.sciencemag.org/cgi/content/full/337/6101/1453-c](http://www.sciencemag.org/cgi/content/full/337/6101/1453-c)

## SCIENCENOW

[www.sciencenow.org](http://www.sciencenow.org)

Highlights From Our Daily News Coverage

### Whodunit? Crows Ask That Question, Too

New Caledonian crows, like humans, can reason about hidden causes.

<http://scim.ag/Crows-Question>

### Plight of the Bumblebee

Did invader insects bring deadly disease to South American bees?

<http://scim.ag/Plight-Bumblebee>

### Early Isolation Impairs Brain Connections

Childhood neglect stunts the brain's 'insulating' cells.

[http://scim.ag/Insulating\\_Cells](http://scim.ag/Insulating_Cells)

## SCIENCE SIGNALING

[www.sciencesignaling.org](http://www.sciencesignaling.org)

The Signal Transduction Knowledge Environment

18 September issue: <http://scim.ag/ss091812>

### RESEARCH ARTICLE: Charting the Landscape of Tandem BRCT Domain-Mediated Protein Interactions

*N. T. Woods et al.*

Building a protein-protein interaction network mediated by the BRCT domain reveals players in the DNA damage response.

### PERSPECTIVE: Modulating Mitochondrial Intracellular Location as a Redox Signal

*M. P. Murphy*

Hypoxia induces the redistribution of mitochondria to promote transcriptional responses to low oxygen.

### REVIEW: Pseudogenes—Newly Discovered Players in Human Cancer

*L. Poliseno*

Pseudogenes can have multiple, diverse functions, affecting not only their parental genes but also unrelated genes.

## SCIENCE TRANSLATIONAL MEDICINE

[www.sciencetranslationalmedicine.org](http://www.sciencetranslationalmedicine.org)

Integrating Medicine and Science

19 September issue: <http://scim.ag/stm091912>

### RESEARCH ARTICLE: Effects of STX209 (Arbaclofen) on Neurobehavioral Function in Children and Adults with Fragile X Syndrome: A Randomized, Controlled, Phase 2 Trial

*E. M. Berry-Kravis et al.*

Administration of a selective GABA<sub>B</sub> agonist to individuals with fragile X syndrome improves their deficits in social avoidance, a core symptom of the disease.

### RESEARCH ARTICLE: Reversal of Disease-Related Pathologies in the Fragile X Mouse Model by Selective Activation of GABA<sub>B</sub> Receptors with Arbaclofen

*C. Henderson et al.*

Pharmacological activation of the GABA<sub>B</sub> receptor with arbaclofen in a mouse model of fragile X syndrome corrects neuronal defects associated with the disease.

### RESEARCH ARTICLE: A Paper-Based Multiplexed Transaminase Test for Low-Cost, Point-of-Care Liver Function Testing

*N. R. Pollock et al.*

A paper-based, multiplexed microfluidic assay allows rapid, semiquantitative, visual measurement of transaminases in clinical specimens.

### PERSPECTIVE: Patient-Empowerment Interactive Technologies

*C. S. Bruggers et al.*

Health-promoting video games are emerging as nonpharmacological tools to help patients manage their diseases.

### PERSPECTIVE: Childhood Disorders of the Synapse—Challenges and Opportunities

*V. Hughes et al.*

New research directions are needed to accelerate the development of new treatments for autism and related disorders.

## SCIENCE CAREERS

[www.sciencereers.org/career\\_magazine](http://www.sciencereers.org/career_magazine)

Free Career Resources for Scientists

### Documenting Exposure for Disease Prevention

*E. Pain*

Epidemiologist Emilie Council studies the health implications of environmental carcinogen exposure.

<http://scim.ag/EmilieCouncil>

>> *Disease Prevention* section p. 1466

### Tooling Up: What's Your Question?

*D. Jensen*

Never mind answering questions—what questions should you ask at a job interview?

<http://scim.ag/WhatsYourQuestion>

### myIDP: So You Think You Have Skills

*J. Hobin et al.*

Figuring out what you know—and what you need to know—is essential in training for a science career.

<http://scim.ag/myIDPSkills>

## SCIENCE PODCAST

[www.sciencemag.org/multimedia/podcast](http://www.sciencemag.org/multimedia/podcast)

Free Weekly Show

On the 21 September *Science* Podcast: a special show on preventing noncommunicable disease, including the economics of prevention, government recommendations, combating Alzheimer's, and grocery studies.

## SCIENCE INSIDER

[news.sciencemag.org/scienceinsider](http://news.sciencemag.org/scienceinsider)

Science Policy News and Analysis

SCIENCE (ISSN 0036-8075) is published weekly on Friday, except the last week in December, by the American Association for the Advancement of Science, 1200 New York Avenue, NW, Washington, DC 20005. Periodicals Mail postage (publication No. 484460) paid at Washington, DC, and additional mailing offices. Copyright © 2012 by the American Association for the Advancement of Science. The title SCIENCE is a registered trademark of the AAAS. Domestic individual membership and subscription (51 issues): \$149 (\$74 allocated to subscription). Domestic institutional subscription (51 issues): \$990; Foreign postage extra: Mexico, Caribbean (surface mail) \$55; other countries (air assist delivery) \$85. First class, airmail, student, and emeritus rates on request. Canadian rates with GST available upon request, GST #R1254 88122. Publications Mail Agreement Number 1069624. Printed in the U.S.A.

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# Science

**337 (6101)**

*Science* **337** (6101), 1431-1557.

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