

## **EDITORIAL**

Leveling the Playing Field Marcia McNutt

### **NEWS OF THE WEEK**

A roundup of the week's top stories

### **NEWS & ANALYSIS**

- Clinical Trials Paused as India **Adopts New Rules**
- **Bacterial Meningitis Finds New Niche** 328 in Gay Communities
- **Biologists Tell Dueling Stories** 329 of How Turtles Get Their Shells
- At an Impasse, U.S. Particle Physicists 330 Gather by the River to Plan and Dream
- 331 The Savage Radiation of the Van Allen Belts Is Homegrown >> Science Express Report by G. D. Reeves et al.
- For Scientists, Protests Morph Into 332 Fight for Academic Freedom Fragile Wetland Will Test Turkey's Resolve in Protecting Biodiversity

## **NEWS FOCUS**

- Indispensable Outsider 334
- An Invisible Hand Behind Plan to Realign U.S. Science Education NIH Teaching Units, Cherished in Schools, May Be Shredded

### **LETTERS**

342 Retraction

P. Puneet et al.

Silver Lining of Singapore's Haze L. R. Carrasco

A Statistically Significant Future for Baves' Rule

R. van Hulst

Response

B. Efron

TECHNICAL COMMENT ABSTRACTS

## **BOOKS** ET AL.

Summer Reading—Seven Book Reviews from Former AAAS Mass Media Fellows

### **POLICY FORUM**

**Determining Benefits and Costs** for Future Generations K Arrow et al

### **PERSPECTIVES**

- Why Does Gastric Bypass Surgery Work? H.-R. Berthoud
  - >> Report p. 406
- How Nitrogen Is Lost B. B. Ward
- 354 **Proton Conduction with** Metal-Organic Frameworks G. K. H. Shimizu et al.
- Where Is PTEN? 355 N. R. Leslie and V. G. Brunton >> Reports pp. 395 and 399
- A Path to Complex Carbohydrates L. L. Kiessling and M. B. Kraft >> Report p. 379
- Genome Mosaicism—One Human, Multiple Genomes J. R. Lupski >> Science Podcast

## **SCIENCE PRIZE ESSAY**

**Engaging High School Students** in Research on Smoking Behavior M. M. Munn et al.

# **RESEARCH ARTICLES**

The Diffusion of Microfinance A. Banerjee et al.

The first person in a village to learn about microfinance influences how widely the information spreads.

Research Article Summary; for full text: http://dx.doi.org/10.1126/science.1236498

**CONTENTS** continued >>





page 344

## ON THE WEB THIS WEEK

### >> Science Podcast

Listen to stories on our many genomes, implanting false memories in mice, science in Turkey, and more.

# >> Find More Online

Check out Science Express, our podcast, videos, daily news, our research journals, and Science Careers at www.sciencemag.org.



Immunostained fluorescence microscopy image of memory engram-bearing cells (red) in the dentate gyrus of a mouse hippocampus (image width: 1.5 millimeters). These cells were genetically tricked to express the protein channelrhodopsin-2 during memory formation, thus becoming responsive to light stimulation. When the cells were activated by light, the mice simultaneously associated a genuine memory with an undesirable event (a foot shock) to create a new but false memory. See page 387.

Image: Xu Liu and Steve Ramirez

## **DEPARTMENTS**

- 316 This Week in Science
- Editors' Choice
- Science Staff 322
- **AAAS News & Notes** 362
- **New Products** 415
- Science Careers 416

# mTORC1 Phosphorylation Sites Encode Their Sensitivity to Starvation and Rapamycin

S. A. Kang et al.

Inhibition of a protein kinase differentially affects its targets, depending on phosphorylation site characteristics. Research Article Summary; for full text: http://dx.doi.org/10.1126/science.1236566

#### **REPORTS**

I-Love-Q: Unexpected Universal Relations 365 for Neutron Stars and Quark Stars K. Yagi and N. Yunes

> The relation of inertia, Love number, and quadrupole moment is independent of neutron and quark stars' internal structure.

Holographic Vortex Liquids and 368 Superfluid Turbulence

P. M. Chesler et al.

A gravitational theory is used to elucidate the flow of energy in a turbulent superfluid.

**Element-Resolved Corrosion Analysis of** Stainless-Type Glass-Forming Steels M. 1. Duarte et al.

> Measurements of the local composition of a steel alloy are correlated with the corrosion

Geometric Frustration of Icosahedron in Metallic Glasses

A. Hirata et al.

Small-volume regions in a bulk metallic glass show icosahedral ordering distorted by partial face-centered cubic symmetry.

A General Strategy for the Chemoenzymatic Synthesis of Asymmetrically Branched N-Glycans Z. Wang et al.

> Oligosaccharides synthesized from a versatile common precursor can be used to probe protein-carbohydrate interactions.

>> Perspective p. 357

Identification of a Colonial Chordate Histocompatibility Gene

A. Voskoboynik et al.

A single gene predicts transplantation compatibility reactions in the star ascidian, Botryllus schlosseri.

Creating a False Memory in the Hippocampus

S. Ramirez et al.

Associations can be artificially created through reactivation of memory engrams in mouse dentate gyrus granule cells.

>> Science *Podcast* 

FtsZ Protofilaments Use a Hinge-Opening Mechanism for Constrictive Force Generation

Y. Li et al.

The curved structure of a protein involved in cell division reveals the mechanism for Z-ring constriction during cytokinesis.

Nuclear PTEN Controls DNA Repair and Sensitivity to Genotoxic Stress

C. Bassi et al.

The phosphatase PTEN works as a lipid phosphatase in the cytoplasm and a protein phosphatase in the nucleus.

A Secreted PTEN Phosphatase That Enters Cells to Alter Signaling and Survival

B. D. Hopkins et al.

An alternative translation start site produces an elongated PTEN that can enter tumor cells and kill them.

>> Perspective p. 355

403 Xk-Related Protein 8 and CED-8 Promote Phosphatidylserine Exposure in Apoptotic Cells

1. Suzuki et al.

An enzyme involved in the flipping of phospholipids in dying cells' surfaces to mark the cells for removal is identified.

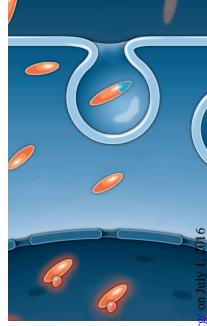
Reprogramming of Intestinal Glucose Metabolism and Glycemic Control in Rats After Gastric Bypass N. Saeidi et al.

> The intestine can adopt a role in glucose control after surgery, possibly explaining why the surgery cures diabetes.

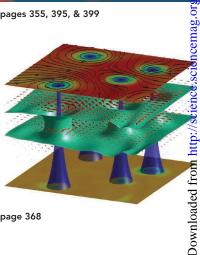
>> Perspective p. 351

H7N9 Influenza Viruses Are Transmissible 410 in Ferrets by Respiratory Droplet Q. Zhana et al.

A large survey of H7N9 influenza viruses in China reveals a spectrum of mutation and virulence.



pages 355, 395, & 399



page 368

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 © 2013 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): 5149 (574 allocated to subscription). Domestic institutional subscription (51 issues): 5990; Foreign postage extra. Mexico, Caribbean (surface mail S55; other countries cair assist delivery) S85. First class, airmail, student, and emeritus rates on request. Canadian rates with GST available upon request, GST #1254 88122. Publications Mail Agreement Number 1069624. Printed in the U.S.A.

Change of address: Allow 4 weeks, giving old and new addresses and 8-digit account number. Postmaster: Send change of address to AAAS, P.O. Box 96178, Washington, DC 20090–6178. Single-copy sales: \$10.00 current issue, \$15.00 back issue prepaid includes surface postage; bulk rates on request. Authorization to photocopy material for internal or personal use under circumstances not falling within the fair use provisions of the Copyright Act is granted by AAAS to libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service, provided that \$30.00 per article is paid directly to CCC, 222 Rosewood Drive, Danvers, MA 01923. The identification code for Science is 0036-8075. Science is indexed in the Reader's Guide to Periodical Literature and in several specialized indexes.



**341** (**6144**) (July 26, 2013) *Science* **341** (6144), 316-415.

Editor's Summary

This copy is for your personal, non-commercial use only.

**Article Tools** Visit the online version of this article to access the personalization and

article tools:

http://science.sciencemag.org/content/341/6144

**Permissions** Obtain information about reproducing this article:

http://www.sciencemag.org/about/permissions.dtl

*Science* (print ISSN 0036-8075; online ISSN 1095-9203) is published weekly, except the last week in December, by the American Association for the Advancement of Science, 1200 New York Avenue NW, Washington, DC 20005. Copyright 2016 by the American Association for the Advancement of Science; all rights reserved. The title *Science* is a registered trademark of AAAS.