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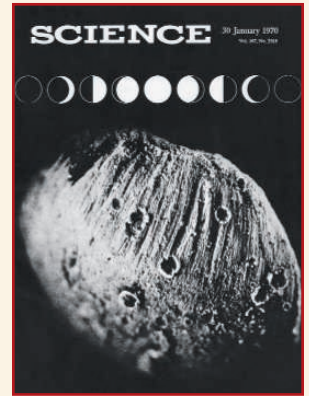
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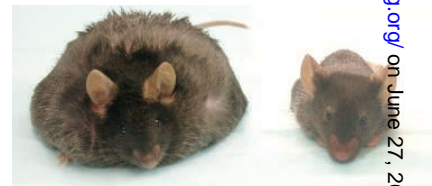
- 280 Dyslexia: A New Synergy Between Education and Cognitive Neuroscience  
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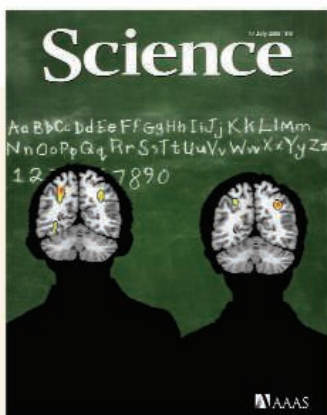


## CELEBRATE THE 40<sup>TH</sup> ANNIVERSARY OF THE APOLLO 11 MOON LANDING

The scientific results of that mission and samples returned from the Moon, published in our 20 January 1970 issue, are now freely available with registration at [www.sciencemag.org/apollo11](http://www.sciencemag.org/apollo11).



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## COVER

Average patterns of brain recruitment, as measured by functional magnetic resonance imaging, in children with typical reading development (left) or dyslexia (right) as they sound out printed words. Left-hemisphere brain regions engaged by typical readers, the parietal cortex (upper left) and fusiform gyrus (lower left), are less engaged by dyslexic readers. See page 280.

*Photo illustration: Yael Kats (brain scans, Susan Whitfield-Gabrieli and John Gabrieli; background, iStockphoto.com)*

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## BREVIA

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T. Pfau et al.

Increased horse race speed over the past century can be attributed to the crouching posture and increased work done by jockeys.

## RESEARCH ARTICLES

## 290 Demographic Variability, Vaccination, and the Spatiotemporal Dynamics of Rotavirus Epidemics

V. E. Pitzer et al.

Diarrhea-causing rotavirus epidemics can be predicted by shifts in birth rate rather than by seasonal variables.

>> *Perspective p. 274*; *Science Podcast*

## 294 Nonlocal Transport in the Quantum Spin Hall State

A. Roth et al.

A topological insulator exhibits current flow in edge states around the sample without the need for magnetic fields.

>> *Perspective p. 278*

## REPORTS

## 297 Higher-Order Photon Bunching in a Semiconductor Microcavity

M. Abmann et al.

The tendency for photons to bunch gets stronger as their number increases.

## 300 Band Formation from Coupled Quantum Dots Formed by a Nanoporous Network on a Copper Surface

J. Lobo-Checa et al.

Trapped electronic states induced by a nanoporous overlayer create an artificial electronic band structure.

303 CH Stretching Excitation in the Early Barrier F + CHD<sub>3</sub> Reaction Inhibits CH Bond Cleavage

W. Zhang et al.

A molecular bond vibration unexpectedly inhibits, rather than promotes, cleavage of the carbon–hydrogen bond.

## 306 Deep-Sea Temperature and Ice Volume Changes Across the Pliocene-Pleistocene Climate Transitions

S. Sosdian and Y. Rosenthal

Increases in glacial ice volume and ice-sheet dynamics are implicated in two distinct climate cooling events.

## 310 Transient Simulation of Last Deglaciation with a New Mechanism for Bølling-Allerød Warming

Z. Liu et al.

A coupled atmosphere-ocean general circulation model simulates the warming of the last deglaciation.

>> *Perspective p. 273*

## 314 Undulatory Swimming in Sand: Subsurface Locomotion of the Sandfish Lizard

R. D. Maladen et al.

X-ray imaging reveals the undulatory motion of a sandfish lizard through a granular fluid.

## 318 Targeted Retrieval and Analysis of Five Neandertal mtDNA Genomes

A. W. Briggs et al.

Targeted sequencing improves Neandertal mitochondrial DNA retrieval and reveals low diversity among individuals.

>> *News story p. 252*321 The Human SepSecS-tRNA<sup>Sec</sup> Complex Reveals the Mechanism of Selenocysteine Formation

S. Palioura et al.

A crystal structure shows how a pyroxydial phosphate enzyme catalyzes formation of selenocysteine from phosphoserine on transfer RNA.

## 325 Tiger Moth Jams Bat Sonar

A. J. Corcoran et al.

*Bertholdia trigona* thwarts the attacks of bats by generating bursts of ultrasound that interfere with the bats' sonar systems.

>> *Science Podcast*

## 328 Functional Amyloids as Natural Storage of Peptide Hormones in Pituitary Secretory Granules

S. K. Maji et al.

Peptide and protein hormones are stored in secretory granules in a nonpathological amyloid conformation.

## 332 RIP3, an Energy Metabolism Regulator That Switches TNF-Induced Cell Death from Apoptosis to Necrosis

D.-W. Zhang et al.

The protein kinase RIP3 mediates necrotic cell death, likely through regulation of metabolic enzymes.

## 336 Reversal of RNA Dominance by Displacement of Protein Sequestered on Triplet Repeat RNA

T. M. Wheeler et al.

An antisense oligonucleotide ameliorates the symptoms of myotonic dystrophy in transgenic mice.

>> *Perspective p. 272*

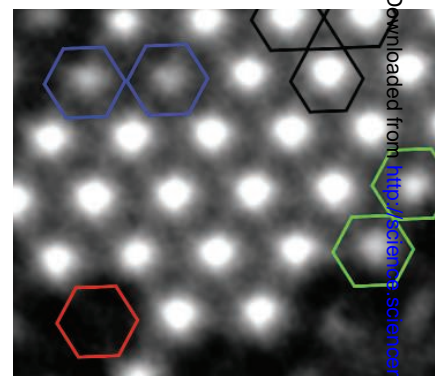
## 340 Genome-Wide RNAi Screen Identifies Genes Involved in Intestinal Pathogenic Bacterial Infection

S. J. F. Cronin et al.

In vivo RNA interference screen reveals regulators of innate immunity in *Drosophila*.

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## SCIENCEONLINE

## SCIENCEEXPRESS

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

### Lysine Acetylation Targets Protein Complexes and Co-Regulates Major Cellular Functions

*C. Choudhary et al.*

A proteomic-scale analysis of protein acetylation suggests that it is an important biological regulatory mechanism.

10.1126/science.1175371

### Structure and Mechanism of a Na<sup>+</sup>-Independent Amino Acid Transporter

*P. L. Shaffer et al.*

The structure of the transporter ApcT reveals common architectural principles between proton- and sodium-coupled transporters.

10.1126/science.1176088

### Mindblind Eyes: An Absence of Spontaneous Theory of Mind in Asperger Syndrome

*A. Senju et al.*

Asperger syndrome individuals do not pass a nonverbal false-belief test.

10.1126/science.1176170

### An Expressed *Fgf4* Retrogene Is Associated with Breed-Defining Chondrodysplasia in Domestic Dogs

*H. G. Parker et al.*

The short legs that characterize certain dog breeds are associated with a gene that arose recently by RNA-based gene duplication.

10.1126/science.1173275

### Exploring Dark Matter with Milky Way Substructure

*M. Kuhlen et al.*

Simulations reveal that dark matter in our galaxy could be detected by the Fermi space telescope.

10.1126/science.1174881

### Bcl6 and Blimp-1 Are Reciprocal and Antagonistic Regulators of T Follicular Helper Cell Differentiation

*R. J. Johnston et al.*

The transcription factors that regulate follicular T helper cell differentiation are identified.

10.1126/science.1175870

## TECHNICALCOMMENTS

### Comment on "Neodymium-142 Evidence for Hadean Mafic Crust"

*R. Andreasen and M. Sharma*

full text at [www.sciencemag.org/cgi/content/full/325/5938/267-a](http://www.sciencemag.org/cgi/content/full/325/5938/267-a)

### Response to Comment on "Neodymium-142 Evidence for Hadean Mafic Crust"

*J. O'Neil et al.*

full text at [www.sciencemag.org/cgi/content/full/325/5938/267-b](http://www.sciencemag.org/cgi/content/full/325/5938/267-b)

## SCIENCENOW

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

Highlights From Our Daily News Coverage

### Don't Blame Birds for 1918 Flu

A new paper disputes the idea that an avian strain caused the global disaster.

### Futuristic Fibers Could Replace Camera Lenses

New technology could be woven into clothing and other materials.

### Holy \$@%#! Swearing Eases the Pain

Researchers figure out why we curse when we get hurt.

## SCIENCESIGNALING

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

The Signal Transduction Knowledge Environment

### RESEARCH ARTICLE: Control of Neuronal Growth Cone Navigation by Asymmetric Inositol 1,4,5-Trisphosphate Signals

*H. Akiyama et al.*

Measurements of its spatial profile reveal the crucial role of asymmetric IP<sub>3</sub> signals in growth cone navigation.

### PERSPECTIVE: Down-Regulating Destruction—Phosphorylation Regulates the E3 Ubiquitin Ligase Nedd4-2

*P. M. Snyder*

Phosphorylation of Nedd4-2 regulates epithelial Na<sup>+</sup> transport.

## GLOSSARY

Find out what ATM, GKAP, and MUP mean in the world of cell signaling.

## SCIENCECAREERS

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

Free Career Resources for Scientists

### Tooling Up: The Biomanufacturing Career Track

*D. Jensen*

Biotech companies are hiring problem-solvers for their manufacturing facilities.

### Business Sense: Starting an Academic Lab

*S. Webb*

Starting your new laboratory requires planning, negotiating, and wise spending decisions.

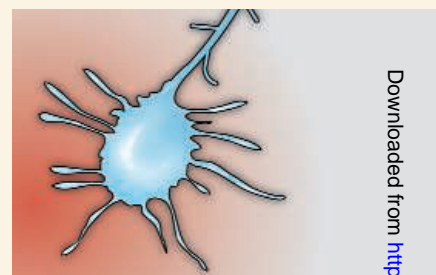
### A Career Revisiting Classical Biological Problems

*E. Pain*

Nenad Ban earned recognition by cracking the crystal structures of complex macromolecules.



SCIENCENOW  
Avian roots?



SCIENCESIGNALING  
Growth cone navigation.

## SCIENCEPODCAST

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

Free Weekly Show

Download the 17 July *Science* Podcast to hear about the dynamics of rotavirus epidemics, how tiger moths jam bat sonar, NIH's new director, and more.

## ORIGINSBLOG

[blogs.sciencemag.org/origins](http://blogs.sciencemag.org/origins)

A History of Beginnings

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

Science Policy News and Analysis

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