

## EDITORIAL

- 269 Modeling Human Disease  
*Aaron D. Gitler and Ruth Lehmann*

## NEWS OF THE WEEK

- 274 A roundup of the week's top stories

## NEWS & ANALYSIS

- 277 U.S. Appeals Court Hears Gene Patent Arguments
- 278 Stability at Last for Australian Synchrotron?
- 279 The Metatron: Experimental Ecology Gets Connected
- 280 What If the Science Pipeline Isn't Really Leaking?
- 281 NSF Program Offers Start-Up 101 to Its Grantees

## NEWS FOCUS

- 282 Cancer Genetics With an Edge
- 285 Taking the Measure of Madidi  
Probing Diversity's Complexity  
*>> Science Podcast*
- 288 European Association for South Asian Archaeology and Art Meeting  
The Ingredients for a 4000-Year-Old Proto-Curry  
Diving Into the Indian Ocean's Past  
Persians Made the Afghan Desert Bloom

## LETTERS

- 290 Retraction  
*T. M. Anderson et al.*
- Human Conflict: Beware Politicized Science  
*J. R. Cohn*
- Human Conflict: Pacifists at Heart  
*E. J. Lieberman*
- Human Conflict: Targeting Natural Resources  
*C. Bruch et al.*
- 292 CORRECTIONS AND CLARIFICATIONS
- 292 TECHNICAL COMMENT ABSTRACTS

## BOOKS ET AL.

- 293 Summer Reading—Eight Book Reviews from Graduate Students and Postdocs

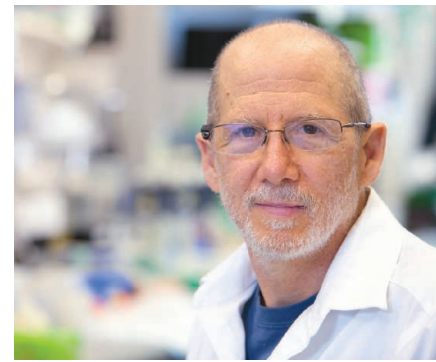
## POLICY FORUM

- 298 Getting HIV Treatment to the Most People  
*S. Lynch et al.*

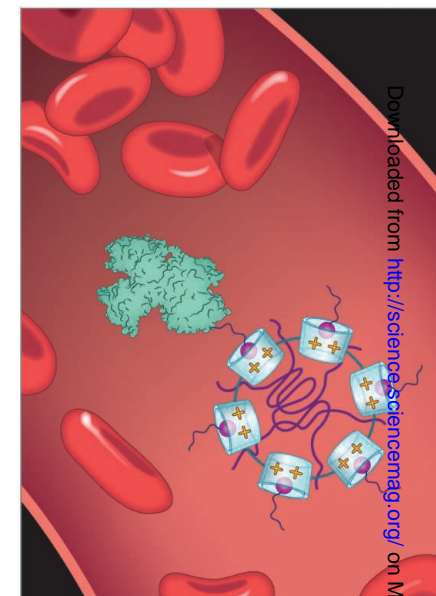
## PERSPECTIVES

- 301 Defining the Plant Germ Line—Nature or Nurture?  
*C. Whipple*  
*>> Report p. 345*
- 302 Molecule Formation in Ultrahigh Magnetic Fields  
*P. Schmelcher*  
*>> Report p. 327*
- 303 Nanomaterials for Drug Delivery  
*J. A. Hubbell and A. Chilkoti*
- 305 The Marine Sulfur Cycle, Revisited  
*M. T. Hurtgen*  
*>> Reports pp. 331 and 334*
- 306 The Art of Ecological Modeling  
*I. L. Boyd*  
*>> Report p. 349*
- 307 Spin Twists in a Transistor  
*I. Žutić and J. Lee*  
*>> Report p. 324*
- 309 Retrospective: Aaron Shatkin (1934–2012)  
*N. Sonenberg and W. Filipowicz*

CONTENTS continued >>



page 282



page 303

Downloaded from <http://science.sciencemag.org/> on March 19, 2018



## COVER

Lake El'gygytgyn, measuring 12 kilometers in diameter and 170 meters in depth, is located in a meteorite impact crater 100 kilometers to the north of the Arctic Circle in northeastern Russia. An international drilling campaign recovered a sediment record from the bottom of the lake, which sheds new light on the climate history of the Arctic over the past 2.8 million years. See page 315.

Photo: Petr Tikhomirov

## DEPARTMENTS

- 267 This Week in *Science*
- 270 Editors' Choice
- 272 Science Staff
- 365 New Products
- 366 Science Careers

## REVIEW

- 310 The Exploration of Hot Nuclear Matter  
*B. V. Jacak and B. Müller*

## RESEARCH ARTICLE

- 315 2.8 Million Years of Arctic Climate Change from Lake El'gygytgyn, NE Russia  
*M. Melles et al.*  
A sediment core from a Russian lake provides a high-latitude climate record where prior terrestrial records have been sparse.

## REPORTS

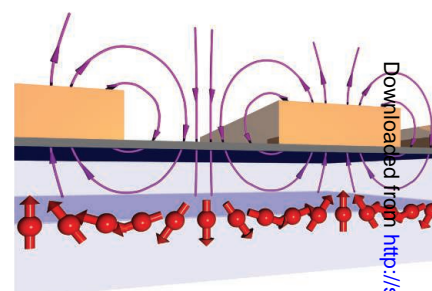
- 320 Imaging the Impact of Single Oxygen Atoms on Superconducting  $\text{Bi}_{2+y}\text{Sr}_{2-y}\text{CaCu}_2\text{O}_{8+x}$   
*I. Zeljkovic et al.*  
Extending the energy range in scanning tunneling spectroscopy of a cuprate reveals additional oxygen defects.
- 324 Spin-Transistor Action via Tunable Landau-Zener Transitions  
*C. Betthausen et al.*  
An alternative design for a spin-based transistor proves tolerant to disorder.  
>> *Perspective p. 307*
- 327 A Paramagnetic Bonding Mechanism for Diatomics in Strong Magnetic Fields  
*K. K. Lange et al.*  
At the enormous field strengths prevailing near stars, theory predicts a magnetically induced class of chemical bonding.  
>> *Perspective p. 302*
- 331 Sulfate Burial Constraints on the Phanerozoic Sulfur Cycle  
*I. Halevy et al.*  
Sulfur isotopes from the stratigraphic record constrain evolving mass fluxes into sulfate-bearing evaporite sediments.
- 334 Rapid Variability of Seawater Chemistry Over the Past 130 Million Years  
*U. G. Wortmann and A. Paytan*  
Modeling the evolution of the marine sulfur cycle suggests that short intervals of rapid change punctuated long periods of stasis.  
>> *Perspective p. 305*
- 337 Identifying Influential and Susceptible Members of Social Networks  
*S. Aral and D. Walker*  
A randomized experiment based on product adoption among Facebook friends identified trend setters and followers.

- 341 Sex-Specific Adaptation Drives Early Sex Chromosome Evolution in *Drosophila*  
*Q. Zhou and D. Bachrog*  
Evolutionarily new X and Y chromosomes evidence how selection for sexual function shapes sex chromosomes.  
>> *Science Podcast*
- 345 Hypoxia Triggers Meiotic Fate Acquisition in Maize  
*T. Kelliher and V. Walbot*  
Maize anthers use cellular redox status rather than a specific germ cell lineage to signal production of new germ cells.  
>> *Perspective p. 301*
- 349 Diversity of Interaction Types and Ecological Community Stability  
*A. Mougi and M. Kondoh*  
A theoretical model incorporating multiple interactions shows how ecological complexity leads to ecosystem stability.  
>> *Perspective p. 306*
- 351 LAAT-1 Is the Lysosomal Lysine/Arginine Transporter That Maintains Amino Acid Homeostasis  
*B. Liu et al.*  
A lysosomal membrane protein identified in nematodes can explain how cysteamine alleviates a lysosomal storage disease.
- 355 Deformations Within Moving Kinetochores Reveal Different Sites of Active and Passive Force Generation  
*S. Dumont et al.*  
Distinct active, force-generating and passive, frictional interactions with microtubules allow processive chromosome movement.
- 358 Regional Astrocyte Allocation Regulates CNS Synaptogenesis and Repair  
*H.-H. Tsai et al.*  
In the mouse brain, astrocytes are not as interchangeable as previously thought.
- 362 High-Resolution Protein Structure Determination by Serial Femtosecond Crystallography  
*S. Boutet et al.*  
A powerful x-ray laser source can probe proteins in detail using much smaller crystals than previously required.

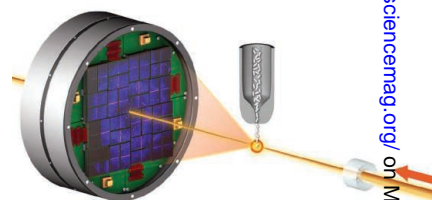
CONTENTS continued >>



pages 306 & 349



pages 307 & 324



page 362

## SCIENCEONLINE

## SCIENCEEXPRESS

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

A Reversible and Higher-Rate Li-O<sub>2</sub> Battery

Z. Peng et al.

A viable lithium-oxygen battery is demonstrated using dimethylsulfoxide electrolyte and a porous gold cathode.

10.1126/science.1223985

Earthquake in a Maze: Compressional Rupture Branching During the 2012  $M_w$  8.6 Sumatra Earthquake

L. Meng et al.

The mechanics of the largest strike-slip earthquake ever recorded give clues about how intraplate earthquakes rupture.

10.1126/science.1224030

## TLR13 Recognizes Bacterial 23S rRNA Devoid of Erythromycin Resistance—Forming Modification

M. Oldenburg et al.

A region of ribosomal RNA that confers antibiotic resistance is also recognized by mouse innate immune receptors.

10.1126/science.1220363

## A Single Progenitor Population Switches Behavior to Maintain and Repair Esophageal Epithelium

D. P. Doupe et al.

Dividing cells in the mouse esophagus contribute to wound healing without the need for quiescent stem cells.

10.1126/science.1218835

*Drosophila* Dosage Compensation Involves Enhanced Pol II Recruitment to Male X-Linked Promoters

T. Conrad et al.

Boosting gene expression from the entire X chromosome in males happens mainly at the level of transcription initiation.

10.1126/science.1221428

## Strategy-Dependent Encoding of Planned Arm Movements in the Dorsal Premotor Cortex

T. M. Pearce and D. W. Moran

The amount of preparatory neural activity in the brain depends on movement complexity and conscious planning.

10.1126/science.1220642

## TECHNICAL COMMENTS

## Comment on "Illusions Promote Mating Success in Great Bowerbirds"

G. Borgia et al.

Full text at [www.sciencemag.org/cgi/content/full/337/6092/292-b](http://www.sciencemag.org/cgi/content/full/337/6092/292-b)

## Response to Comment on "Illusions Promote Mating Success in Great Bowerbirds"

J. A. Endler et al.

Full text at [www.sciencemag.org/cgi/content/full/337/6092/292-c](http://www.sciencemag.org/cgi/content/full/337/6092/292-c)

## SCIENCE NOW

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## Imagining Tomorrow's Computers Today

Intel futurist Brian David Johnson tries to forecast how we will interact with technology in 2020.

[http://scim.ag/Future\\_Computers](http://scim.ag/Future_Computers)

## Europe Opens Door to Young NSF Grantees

A new agreement lets early-career scientists join ERC-funded groups for up to one year.

<http://scim.ag/Young-Grantees>

## Sailing Expedition Reveals Oceans' Tiniest Secrets

A worldwide plankton sampling effort yields 1.5 million taxa.

<http://scim.ag/Tiniest-Secrets>

## SCIENCE SIGNALING

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

The Signal Transduction Knowledge Environment

17 July issue: <http://scim.ag/ss071712>

## RESEARCH ARTICLE: Epidermal Growth Factor Receptor Is Essential for Toll-Like Receptor 3 Signaling

M. Yamashita et al.

Growth factor receptor activity contributes to the antiviral response.

## RESEARCH ARTICLE: Abl Family Kinases Modulate T Cell–Mediated Inflammation and Chemokine-Induced Migration Through the Adaptor HEF1 and the GTPase Rap1

J. J. Gu et al.

Inhibitors of Abl family kinases block T cell migration and could be used to treat inflammatory diseases.

## PERSPECTIVE: GSK3-Like Kinases Integrate Brassinosteroid Signaling and Stomatal Development

S. A. Casson and A. M. Hetherington

Brassinosteroid signaling is crucial for stomatal development.

## SCIENCE TRANSLATIONAL MEDICINE

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

Integrating Medicine and Science

18 July issue: <http://scim.ag/stm071812>

## STATE OF THE ART REVIEW: HIV-1 Reservoirs in Breast Milk and Challenges to Elimination of Breast-Feeding Transmission of HIV-1

P. Van de Perre et al.

The breast milk of HIV-infected mothers contains reservoirs of HIV, even when they are successfully treated with antiretroviral therapy; new approaches to prophylactic therapy are needed to prevent HIV transmission to their infants through breast-feeding.

RESEARCH ARTICLE: Rapid Evolution of HIV-1 to Functional CD8<sup>+</sup> T Cell Responses in Humanized BLT Mice

T. E. Dudek et al.

Humanized BLT mice accurately develop human HIV-specific CD8<sup>+</sup> T cell responses capable of rapidly selecting for CTL escape mutations.

## RESEARCH ARTICLE: Cardiac Glycosides Exert Anticancer Effects by Inducing Immunogenic Cell Death

L. Menger et al.

Cardiac glycosides kill cancer cells in a way that stimulates the immune response.

## RESEARCH ARTICLE: Continuous Intravesical Lidocaine Treatment for Interstitial Cystitis/Bladder Pain Syndrome—Safety and Efficacy of a New Drug Delivery Device

J. C. Nickel et al.

Interstitial cystitis/bladder pain syndrome patients tolerate and experience symptomatic relief from a bladder-borne device that provides continuous lidocaine delivery.

## COMMENTARY: Reporting Actionable Research Results—Shared Secrets Can Save Lives

L. E. Hunter et al.

Controlled use of a cryptographic method for returning research results to human subjects can improve medical care with a modest cost to privacy.

## SCIENCE CAREERS

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

Free Career Resources for Scientists

## Tooling Up: Advice from the C-Suite

D. Jensen

Advice from top executives reflects long experience climbing the corporate ranks, hiring people, and watching others succeed and fail.

<http://scim.ag/CSuiteAdvice>

>> Science Podcast

## How to Collaborate

S. A. Holgate

Scientist seeks honest, reliable partner for meaningful research discussions and possibly more, ideally for a long-term relationship.

<http://scim.ag/CollaborateEffectively>

## SCIENCE PODCAST

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

Free Weekly Show

On the 20 July *Science* Podcast: generating new sex chromosomes, observing climate change in action, advice from the C-suite, and more.

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**337 (6092)**

*Science* **337** (6092), 267-365.

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