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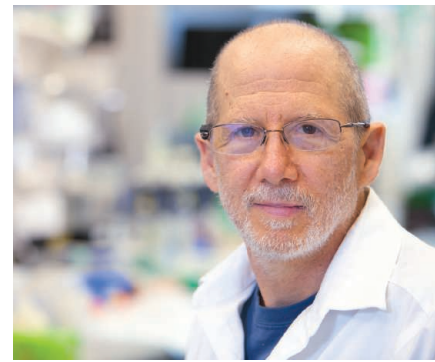
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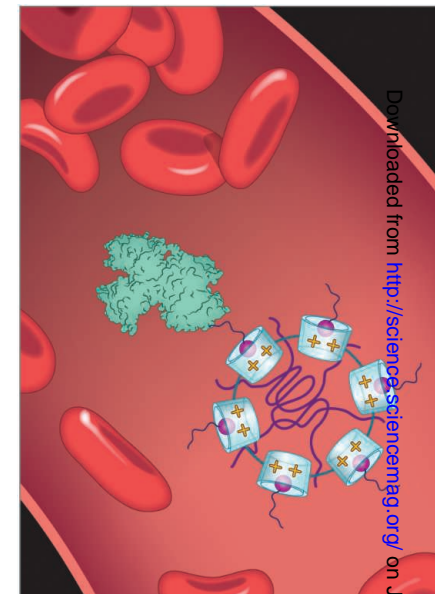
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## COVER

Lake El'gygytyn, 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

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A sediment core from a Russian lake provides a high-latitude climate record where prior terrestrial records have been sparse.

## REPORTS

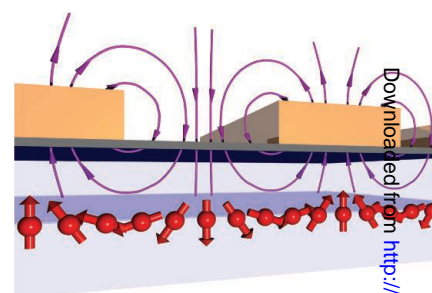
- 320 Imaging the Impact of Single Oxygen Atoms on Superconducting  $\text{Bi}_{2+y}\text{Sr}_{2-y}\text{CaCu}_2\text{O}_{8+x}$   
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At the enormous field strengths prevailing near stars, theory predicts a magnetically induced class of chemical bonding.  
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- 358 Regional Astrocyte Allocation Regulates CNS Synaptogenesis and Repair  
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In the mouse brain, astrocytes are not as interchangeable as previously thought.
- 362 High-Resolution Protein Structure Determination by Serial Femtosecond Crystallography  
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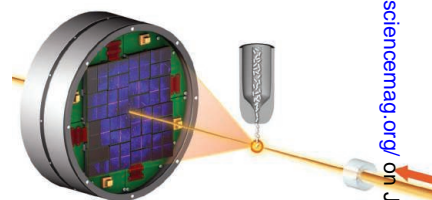
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## SCIENCEONLINE

## 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. Doupé 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/ful/337/6092/292-b](http://www.sciencemag.org/cgi/content/ful/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/ful/337/6092/292-c](http://www.sciencemag.org/cgi/content/ful/337/6092/292-c)

## SCIENCE NOW

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Highlights From Our Daily News Coverage

## 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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