



NEWS

IN BRIEF

480 Roundup of the week's news

IN DEPTH

484 NEPAL DISASTER PRESAGES A COMING MEGAQUAKE

Rupture in quiet region of crust suggests Himalayan threat was underestimated *By E. Hand and P. Pulla*

485 IN GUINEA, A LONG, DIFFICULT ROAD TO ZERO EBOLA CASES

The country could soon be the epidemic's last holdout *By M. Enserink*

486 EMBRYO ENGINEERING STUDY SPLITS SCIENTIFIC COMMUNITY

First test of gene-editing technique on human embryos illustrates clinical risks *By J. Kaiser and D. Normile*

488 HAVE A SWEET TOOTH? NEW BLOOD TEST COULD TELL

Isotope ratios could aid research by tracking added sugars *By V. Callier*

489 GREECE RAIDS RESEARCH FUNDS TO PAY SALARIES

Beleaguered scientists are spending reserves to protect them from confiscation *By E. Cartridge*

FEATURES

490 BEYOND GRAPHENE

The ultrathin form of carbon has inspired other atoms-thick materials that promise even bigger technological payoffs *By R. F. Service*

493 WHAT IS JEOPARDY!?

This popular TV game show has a thing for science *By J. Cohen*

INSIGHTS

PERSPECTIVES

496 1000 DAMS DOWN AND COUNTING

Dam removals are reconnecting rivers in the United States *By J. E. O'Connor et al.*

498 THE QUANTUM HALO STATE OF THE HELIUM TRIMER

Femtosecond laser pulses help to take a snapshot of the huge elusive Efimov state *By O. Kornilov*

► REPORT P. 551

499 BRAIN DISORDERS? PRECISELY

Precision medicine comes to psychiatry *By T. R. Insel and B. N. Cuthbert*

501 EXTINCTION RISKS FROM CLIMATE CHANGE

How will climate change affect global biodiversity? *By J. Hille Ris Lambers*

► REPORT P. 571



502 HUMAN-WILDLIFE CONFLICTS IN A CROWDED AIRSPACE

How can the ecological consequences of the increasing use of airspace by humans be minimized? *By S. A. Lambertucci et al.*

504 SECURE SUSTAINABLE SEAFOOD FROM DEVELOPING COUNTRIES

Require improvements as conditions for market access *By G. S. Sampson et al.*
► PODCAST

506 EARLY LIFE AIRE

The development of particular T cells at a specific time prevents autoimmunity *By A. Tanaka and S. Sakaguchi*

► REPORT P. 589

BOOKS ET AL.

508 FORAGERS, FARMERS, AND FOSSIL FUELS

By I. Morris, reviewed by P. Turchin

509 FROM SIGHT TO LIGHT

By A. M. Smith, reviewed by C. Dainty
► LIGHT AND OPTICS SECTION P. 514

509 WILD IDEAS

By E. Kelsey

LETTERS

511 AMERICA'S CRISIS OF FAITH IN SCIENCE

By T. L. Pittinsky

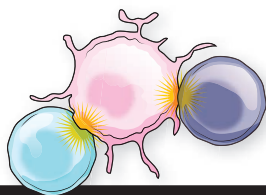
511 OUTSIDE THE TOWER: BRINGING SCIENCE INSIDE PRISON WALLS

By C. J. LeRoy

512 BEWARE STUDY DESIGN MEASUREMENT ERRORS

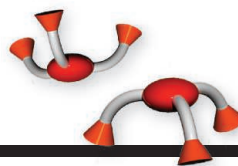
By D. B. Khattry





506 & 589

Suppressing autoimmunity



555

A tool to probe salt bridges

RESEARCH

IN BRIEF

536 From *Science* and other journals

RESEARCH ARTICLE

539 DNA REPAIR

Proteomics reveals dynamic assembly of repair complexes during bypass of DNA cross-links *M. Räschle et al.*

RESEARCH ARTICLE SUMMARY; FOR FULL TEXT: dx.doi.org/10.1126/science.1253671

REPORTS

540 QUANTUM SIMULATION

Two-dimensional superexchange-mediated magnetization dynamics in an optical lattice *R. C. Brown et al.*

544 QUANTUM GASES

Observation of isolated monopoles in a quantum field *M. W. Ray et al.*

547 FERROELECTRICS

Observation of a periodic array of flux-closure quadrants in strained ferroelectric PbTiO₃ films *Y. L. Tang et al.*

551 THREE-BODY PHYSICS

Observation of the Efimov state of the helium trimer *M. Kumitski et al.*

► PERSPECTIVE P. 498

555 IONIC INTERACTIONS

Subnanoscale hydrophobic modulation of salt bridges in aqueous media *S. Chen et al.*

560 BRAIN COMPUTATION

Selective information routing by ventral hippocampal CA1 projection neurons *S. Ciochi et al.*

563 BIOMECHANICS

Mechanistic origins of bombardier beetle (*Brachinini*) explosion-induced defensive spray pulsation *E. M. Arndt et al.*

567 EXTINCTIONS

Paleontological baselines for evaluating extinction risk in the modern oceans *S. Finnegan et al.*

571 CLIMATE CHANGE

Accelerating extinction risk from climate change *M. C. Urban*

► PERSPECTIVE P. 501

574 BACTERIAL DIVISION

Mechanical crack propagation drives millisecond daughter cell separation in *Staphylococcus aureus* *X. Zhou et al.*

578 PROTEIN DYNAMICS

Direct observation of hierarchical protein dynamics *J. R. Lewandowski et al.*

581 STRUCTURAL BIOLOGY

Structures of the CRISPR-Cmr complex reveal mode of RNA target positioning *D. W. Taylor et al.*

585 RETROTRANSPOSONS

An RNA polymerase III subunit determines sites of retrotransposon integration *A. Bridier-Nahmias et al.*

589 IMMUNE TOLERANCE

Regulatory T cells generated early in life play a distinct role in maintaining self-tolerance *S. Yang et al.*

► PERSPECTIVE P. 506

DEPARTMENTS

479 EDITORIAL

Transparency versus harassment *By Michael Halpern and Michael Mann*

602 WORKING LIFE

From war to science paradise *By Rachel Bernstein*

SPECIAL SECTION

Light and Optics

INTRODUCTION

514 Frontiers in light and optics

REVIEWS

516 Nanophotonics: Shrinking light-based technology *A. F. Koenderink et al.*

521 Transforming the optical landscape *J. B. Pendry et al.*

525 Quantum optics: Science and technology in a new light *I. A. Walmsley*

530 Beyond crystallography: Diffractive imaging using coherent x-ray light sources *J. Miao et al.*

SEE ALSO

► BOOKS *ET AL.* P. 509

ON THE COVER



Sculpting coherent x-ray light with visible lasers. When an atom is hit by a strong rosette-shaped laser field (purple) (a superposition

of red and blue circularly polarized lasers with opposite helicity), an electron (green) is ripped from, and recollides with, the parent ion. The result is the emission of bright, circularly polarized light at extreme ultraviolet wavelengths (blue). For more on cutting-edge advances in light and optics, see page 514. *Image: The Kapteyn/Murnane Group and Steve Burrows, JILA; and the Cohen Group, Technion*

Science Staff	478
New Products	595
Science Careers	596

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 © 2015 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): \$153 (\$74 allocated to subscription). Domestic institutional subscription (51 issues): \$1282. 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. Change of address: Allow 4 weeks. Allow 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.

Science

348 (6234)

Science **348** (6234), 479-602.

ARTICLE TOOLS

<http://science.sciencemag.org/content/348/6234>

PERMISSIONS

<http://www.sciencemag.org/help/reprints-and-permissions>

Use of this article is subject to the [Terms of Service](#)

Science (print ISSN 0036-8075; online ISSN 1095-9203) is published by the American Association for the Advancement of Science, 1200 New York Avenue NW, Washington, DC 20005. 2017 © The Authors, some rights reserved; exclusive licensee American Association for the Advancement of Science. No claim to original U.S. Government Works. The title *Science* is a registered trademark of AAAS.