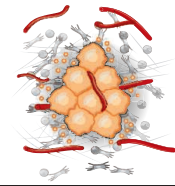


# CONTENTS



1038

Tumor cells remodel their niche

8 MARCH 2019 • VOLUME 363 • ISSUE 6431



1020

## NEWS

### IN BRIEF

**1018** News at a glance

### IN DEPTH

#### **1020 NIH QUERIES ON FOREIGN TIES RATTLE UNIVERSITIES**

Letters singling out faculty who may not have disclosed links could chill collaborations *By J. Mervis*

#### **1021 HAS A SECOND PERSON WITH HIV BEEN CURED?**

Long-term disappearance of virus after a stem cell transplant may guide less drastic cures *By J. Cohen*

#### **1022 DID BLACK DEATH STRIKE SUB-SAHARAN AFRICA?**

An interdisciplinary cadre of researchers suggests medieval plague transformed societies *By L. Wade*

► PODCAST

#### **1023 UNIVERSITY OF CALIFORNIA TAKES A STAND ON OPEN ACCESS**

University rejects Elsevier's journal subscriptions offer *By A. Fox and J. Brainard*

#### **1023 CHINA TIGHTENS RULES ON GENE EDITING**

Move is response to CRISPR-altered babies *By D. Normile*

#### **1024 VACCINATION OPPONENTS TARGET CDC PANEL**

Protesters assail committee that recommends which vaccines Americans should receive *By M. Wadman*

#### **1025 GRAZING ANIMALS SHOWN TO INHABIT A 'LANDSCAPE OF FEAR'**

In a Mozambique park, researchers test how predators can reshape an ecosystem by affecting prey behavior *By E. Pennisi*

### FEATURES

#### **1026 DUBIOUS DIAGNOSIS**

A war on "prediabetes" has created millions of new patients and a tempting opportunity for pharma. But how real is the condition? *By C. Piller*

► VIDEO

## INSIGHTS

### POLICY FORUM

#### **1032 ANIMAL CULTURES MATTER FOR CONSERVATION**

Understanding the rich social lives of animals benefits international conservation efforts *By P. Brakes et al.*

► REPORT BY H. S. KÜHL ET AL.  
10.1126/science.aau4532

### PERSPECTIVES

#### **1035 SQUEEZING STRONG CORRELATIONS FROM GRAPHENE**

Pressure tunes electronic interactions and superconductivity in twisted bilayer graphene *By B. E. Feldman*

► RESEARCH ARTICLE P. 1059

#### **1036 DWELLING AT MEMBRANES PROMOTES DECISIVE SIGNALING**

Membrane receptor clustering and phase separation enable noise filtering in signaling *By E. W. Martin and T. Mittag*

► REPORTS PP. 1093 & 1098

#### **1038 THE TUMOR AS ORGANIZER MODEL**

Cancer cells are the architects of their primary and metastatic microenvironments

*By J. Li and B. Z. Stanger*

#### **1040 THE SOUTHERN AMPLIFIER**

Greater Southern Ocean stratification may have lowered the atmospheric CO<sub>2</sub> concentration and prolonged ice ages

*By L. Menviel*

► REPORT P. 1080

#### **1041 FATS ENHANCE STEM CELL EMERGENCE**

Cholesterol biosynthesis is intrinsically linked to the regulation of hematopoiesis

*By V. Rajan and J. N. Berman*

► REPORT P. 1085

**1042 HOW TO PRINT A 3D OBJECT ALL AT ONCE**

A tomography-based method prints polymer objects volumetrically  
By *A. J. Hart and A. Rao*  
▶ REPORT P. 1075

**BOOKS ET AL.****1044 NUCLEAR FALLOUT**

Soviet data, long dismissed by the West, document the Chernobyl disaster's devastating legacy  
By *E. Aronova*

**1045 SPEAKING FREELY ON THE INTERNET**

China's "great firewall" points toward a profound new mechanism of social control  
By *A. Martin*

**LETTERS****1046 BRAZIL'S POLICIES STUCK IN THE MUD**

By *J. V. Campos-Silva and C. A. Peres*

**1046 BROADLY DEFINING "WORKING LANDS"**

By *J. L. Deichmann et al.*

**1048 RESPONSE**

By *C. Kremen and A. Merenlender*

**PRIZE ESSAY****1050 THE THERAPEUTIC PROMISE OF APOPTOSIS**

Programmed stem cell death appears to play a role in wound healing and tissue regeneration  
By *Y. Fuchs*

**RESEARCH****IN BRIEF**

**1052** From *Science* and other journals

**REVIEW****1055 IMMUNOLOGY**

cGAS in action: Expanding roles in immunity and inflammation  
By *A. Ablasser and Z. J. Chen*  
REVIEW SUMMARY; FOR FULL TEXT:  
dx.doi.org/10.1126/science.aat8657

**RESEARCH ARTICLES****1056 DRUG DESIGN**

A small-molecule fusion inhibitor of influenza virus is orally active in mice  
By *M. J. P. van Dongen et al.*  
RESEARCH ARTICLE SUMMARY; FOR FULL TEXT:  
dx.doi.org/10.1126/science.aar6221

**1057 DYNAMICAL SYSTEMS**

Exotic states in a simple network of nanoelectromechanical oscillators  
By *M. H. Matheny et al.*  
RESEARCH ARTICLE SUMMARY; FOR FULL TEXT:  
dx.doi.org/10.1126/science.aav7932

**1058 MICROBIOTA**

Endocytosis of commensal antigens by intestinal epithelial cells regulates mucosal T cell homeostasis  
By *M. S. Ladinsky et al.*  
RESEARCH ARTICLE SUMMARY; FOR FULL TEXT:  
dx.doi.org/10.1126/science.aat4042

**1059 SUPERCONDUCTIVITY**

Tuning superconductivity in twisted bilayer graphene  
By *M. Yankowitz et al.*  
▶ PERSPECTIVE P. 1035

**REPORTS****1065 SPINTRONICS**

Magneto-Seebeck tunneling on the atomic scale  
By *C. Friesen et al.*

**1068 QUANTUM OPTICS**

Coherent single-photon emission from colloidal lead halide perovskite quantum dots  
By *H. Utzat et al.*

**1072 QUANTUM OPTICS**

Observation and stabilization of photonic Fock states in a hot radio-frequency resonator  
By *M. F. Gely et al.*

**1075 3D PRINTING**

Volumetric additive manufacturing via tomographic reconstruction  
By *B. E. Kelly et al.*  
▶ PERSPECTIVE P. 1042

**1080 GLACIAL CYCLES**

The residence time of Southern Ocean surface waters and the 100,000-year ice age cycle  
By *A. P. Hasenfratz et al.*  
▶ PERSPECTIVE P. 1040

**1085 HEMATOPOIESIS**

AIBP-mediated cholesterol efflux instructs hematopoietic stem and progenitor cell fate  
By *Q. Gu et al.*  
▶ PERSPECTIVE P. 1041

**1088 SIGNAL TRANSDUCTION**

Direct stimulation of NADP<sup>+</sup> synthesis through Akt-mediated phosphorylation of NAD kinase  
By *G. Hoxhaj et al.*

**PHASE SEPARATION**

**1093** Stoichiometry controls activity of phase-separated clusters of actin signaling proteins  
By *L. B. Case et al.*

**1098** A molecular assembly phase transition and kinetic proofreading modulate Ras activation by SOS  
By *W. Y. C. Huang et al.*

▶ PERSPECTIVE P. 1036

**1103 STRUCTURAL BIOLOGY**

Structural basis for pH-dependent retrieval of ER proteins from the Golgi by the KDEL receptor  
By *P. Bräuer et al.*

**DEPARTMENTS****1017 EDITORIAL**

Crisis threatens science progress  
By *Jorge A. Huete-Pérez et al.*

**1114 WORKING LIFE**

Fighting through the gray  
By *Stephanie M. Aguillon*

**ON THE COVER**

When health experts declared that prediabetes, a slightly elevated blood sugar level, is a medical condition that calls for treatment, tens of millions of Americans became potential

patients. But as a *Science* investigative report shows, the risks of prediabetes may have been greatly exaggerated, and many treatments offer little benefit. See page 1026. *Illustration: Stephan Schmitz*

Science Staff ..... 1014  
New Products..... 1109  
Science Careers ..... 1110

SCIENCE (ISSN 0036-8075) is published weekly on Friday, except 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. 48446D) paid at Washington, DC, and additional mailing offices. Copyright © 2019 by the American Association for the Advancement of Science. The title SCIENCE is a registered trademark of the AAAS. Domestic individual membership, including subscription (12 months): \$165 (\$74 allocated to subscription). Domestic institutional subscription (51 issues): \$1971. Foreign postage extra: Mexico, Caribbean (surface mail) \$55; other countries (air assist delivery): \$98. First class, airmail, student, and emeritus rates on request. Canadian rates with GST available upon request. GST #R123488122. 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: \$15 each plus shipping and handling; bulk rate on request. Authorization to reproduce material for internal or personal use under circumstances not falling within the fair use provisions of the Copyright Act can be obtained through the Copyright Clearance Center (CCC), www.copyright.com. 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

**363 (6431)**

*Science* **363** (6431), 1017-1114.

**ARTICLE TOOLS**

<http://science.sciencemag.org/content/363/6431>

**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.