

## NEWS

### IN BRIEF

**892** Roundup of the week's news

### IN DEPTH

**894 LISA PATHFINDER TESTS SPACETIME SENSOR**

A European space probe is set to pave the way for measurements of gravitational waves *By D. Clery*

**895 A FASTER, BRIGHTER PICTURE OF BRAIN CELLS IN ACTION**

New voltage-sensor achieves submillisecond precision *By E. Underwood*

► REPORT BY Y. GONG ET AL.

10.1126/science.aab0810

**896 NIH PROGRAM FAILS TO LAUNCH BLACKS IN BIOTECH**

Small Business Innovation Research program makes almost no grants to African-Americans *By J. Mervis*

**897 EUROPE'S RESEARCH CHIEF WANTS SCIENTISTS TO SPEAK UP**

Commissioner Carlos Moedas is confident that science and innovation will bring growth to a divided continent *By T. Rabesandratana*

**898 HUMANS MAY HAVE REACHED CHILE BY 18,500 YEARS AGO**

Monte Verde stone tools may be the oldest in the Americas *By A. Gibbons*

**899 CRYSTALLINE EYES OF CHITONS INSPIRE MATERIALS SCIENTISTS**

Mollusk makes hundreds of eyes from shell mineral *By E. Pennisi*

► REPORT P. 952

### FEATURES

**900 WHAT DOES A DISEASE DESERVE?**

A move to end NIH's AIDS earmark fuels debate over whether funding should reflect disease burden *By J. Kaiser*

**903 HOW TO HIJACK A JOURNAL**

A patient hacker can take over a journal's official Web domain with relative ease—as I found out by doing so myself *By J. Bohannon*

## INSIGHTS

### BOOKS ET AL.

**906 THINGS TO DO IN A RETIREMENT HOME TRAILER PARK**

*By A. Wright,*

### MY DEGENERATION

*By P. Dunlap-Shohl, reviewed by A. W. Frank*

### PERSPECTIVES

**908 RESTORING VOICE**

Engineered vocal cords could soon replace damaged tissue

*By J. L. Long and D. K. Chhetri*

► SCIENCE TRANSLATIONAL MEDICINE

RESEARCH ARTICLE BY C. LING ET AL.; PODCAST

**909 MAPPING THE BIRTH OF THE SLEEP CONNECTOME**

Hindbrain neurons flip the switch between REM sleep, non-REM sleep, and wakefulness *By V. V. Vyazovskiy*

► REPORT P. 957

**911 TRANSPORT: A ROADBLOCK TO CLIMATE CHANGE MITIGATION?**

Urban mobility solutions foster climate mitigation *By F. Creutzig et al.*

**913 PUTTING THE BREAKS ON MEIOSIS**

Yeast and birds reveal remarkable evolutionary stability in recombination patterns *By M. Lichten*

► RESEARCH ARTICLES PP. 928 & 932

**914 MAGNETIC FIELDS MAKE WAVES IN CUPRATES**

High magnetic fields reveal underlying electronic states in high-temperature superconductors

*By M.-H. Julien*

► REPORT P. 949

**915 100 YEARS OF CONTINENTAL DRIFT**

One hundred years ago, Alfred Wegener laid the foundations for the theory of plate tectonics *By M. Romano and R. L. Cifelli*

**917 PEROVSKITE SOLAR CELLS JOIN THE MAJOR LEAGUE**

Highly efficient perovskite solar cells show promise for future low-cost electricity generation *By M. Sessolo and H. J. Bolink*

► REPORT P. 944

**918 OPENING THE WINDOW FOR AQUEOUS ELECTROLYTES**

Lithium batteries can operate with a safer "water-in-salt" electrolyte

*By L. Smith and B. Dunn*

► RESEARCH ARTICLE P. 938



Science Staff.....	890
New Products.....	991
Science Careers.....	992

# CONTENTS



## 913, 928, & 932

Genetic recombination in birds

20 NOVEMBER 2015 • VOLUME 350 • ISSUE 6263

### LETTERS

#### 920 WILDFIRES: WEIGH POLICY EFFECTIVENESS

By M. M. Boer et al.

#### 920 WILDFIRES: SYSTEMIC CHANGES REQUIRED

By M. Thompson et al.

#### 920 RESPONSE

By M. North et al.

#### 921 ERRATA

## RESEARCH

### IN BRIEF

923 From *Science* and other journals

### REVIEW

#### 926 NEURODEVELOPMENT

Genes, circuits, and precision therapies for autism and related neurodevelopmental disorders *M. Sahin and M. Sur*

REVIEW SUMMARY; FOR FULL TEXT:  
dx.doi.org/10.1126/science.aab3897

### RESEARCH ARTICLES

#### 927 STEM CELL REGULATION

Bidirectional Notch signaling regulates *Drosophila* intestinal stem cell multipotency *Z. Guo and B. Ohlstein*

RESEARCH ARTICLE SUMMARY; FOR FULL TEXT:  
dx.doi.org/10.1126/science.aab0988

### NONHUMAN GENETICS

928 Stable recombination hotspots in birds *S. Singhal et al.*

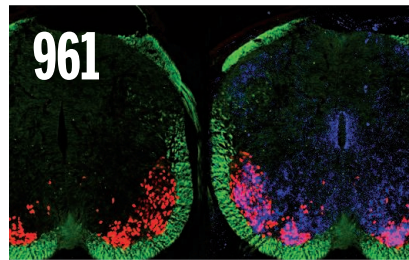
932 Nonparadoxical evolutionary stability of the recombination initiation landscape in yeast *I. Lam and S. Keeney*

► PERSPECTIVE P. 913

### 938 BATTERIES

“Water-in-salt” electrolyte enables high-voltage aqueous lithium-ion chemistries *L. Suo et al.*

► PERSPECTIVE P. 918



### REPORTS

#### 944 SOLAR CELLS

Efficient and stable large-area perovskite solar cells with inorganic charge extraction layers *W. Chen et al.*

► PERSPECTIVE P. 917

#### 949 SUPERCONDUCTIVITY

Three-dimensional charge density wave order in  $\text{YBa}_2\text{Cu}_3\text{O}_{6.67}$  at high magnetic fields *S. Gerber et al.*

► PERSPECTIVE P. 914

#### 952 BIOLOGICAL MATERIALS

Multifunctionality of chiton biomineralized armor with an integrated visual system *L. Li et al.*

► NEWS STORY P. 899; VIDEO

#### 957 SLEEP RESEARCH

Cells of a common developmental origin regulate REM/non-REM sleep and wakefulness in mice *Y. Hayashi et al.*

► PERSPECTIVE P. 909

#### 961 AXON GUIDANCE

Operational redundancy in axon guidance through the multifunctional receptor Robo3 and its ligand NELL2 *A. Jaworski et al.*

#### 965 CAMOUFLAGE

Open-ocean fish reveal an omnidirectional solution to camouflage in polarized environments *P. C. Brady et al.*

#### 970 PARASITOLOGY

Helminth infection, fecundity, and age of first pregnancy in women *A. D. Blackwell et al.*

### 972 CANCER IMMUNOLOGY

Chemotherapy-induced antitumor immunity requires formyl peptide receptor 1 *E. Vacchelli et al.*

### 978 GENE REGULATION

Transcription factor trapping by RNA in gene regulatory elements *A. A. Sigova et al.*

### 981 IMMUNOLOGY

Tissue residency of innate lymphoid cells in lymphoid and nonlymphoid organs *G. Gasteiger et al.*

### 985 CANCER IMMUNOLOGY

Patrolling monocytes control tumor metastasis to the lung *R. N. Hanna et al.*

### DEPARTMENTS

#### 891 EDITORIAL

America's science legacy  
By *Neil deGrasse Tyson*

► VIDEO

#### 998 WORKING LIFE

A doctor's dilemma  
By *Elisabeth Pain*

### ON THE COVER



Superimposed optical and scanning electron micrographs of the mineralized protective armor plates of the chiton *Acanthopleura granulata*. Coincident with the dark pigments are image-forming

lenses primarily composed of aragonite, in marked contrast to the protein-based eyes of most animals. In addition to providing mechanical protection, such design simultaneously allows the organism to monitor potential predatory attacks through optical vision. See pages 899 and 952. *Image: Ling Li*

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, 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: \$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

**350 (6263)**

*Science* **350** (6263), 891-998.

**ARTICLE TOOLS**

<http://science.sciencemag.org/content/350/6263>

**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.