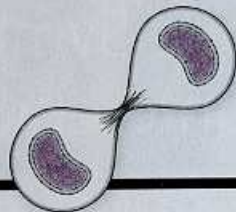


# CONTENTS

19 JUNE 2015 • VOLUME 348 • ISSUE 6241



1314

Sealing the nuclear envelope



1295

## NEWS

### IN BRIEF

**1292** Roundup of the week's news

### IN DEPTH

#### **1295 THE RETURN OF PHILAE**

Revived after hibernation, comet lander awaits orders *By E. Hand and D. Clery*

#### **1296 RESEARCH CHIMPS WILL SOON BE LISTED AS 'ENDANGERED'**

Ruling could disrupt biomedical research *By D. Grimm*

#### **1297 DESIGNER PROTEINS PRODUCE POTENT HIV DEFENSE**

AIDS vaccine developers mimic natural route to powerful immune responses *By J. Cohen*

► SCIENCE EXPRESS RESEARCH ARTICLES BY R. W. SANDERS ET AL. 10.1126/science.aac4223 and J. G. JARDINE ET AL. 10.1126/science.aac5894

#### **1298 REPUBLICANS SPLIT ON CLIMATE, SOCIAL SCIENCE SPENDING**

House calls for cuts, Senate favors status quo *By J. Mervis*

**1288** 19 JUNE 2015 • VOL 348 ISSUE 6241

#### **1299 PUMPED UP TO RUMBLE**

Massive studies of wastewater injection wells show fast pumping raises earthquake risk *By J. Rosen*

► REPORT P. 1336; SCIENCE ADVANCES RESEARCH ARTICLE BY F. R. WALSH III ET AL.

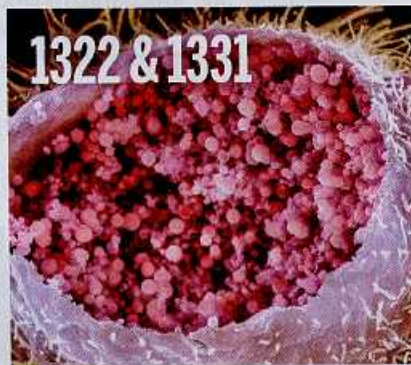
### FEATURES

#### **1300 LAST DANCE?**

An urgent effort to save the West's iconic lesser prairie chicken could point the way to a truce in other endangered-species battles *By M. Lavelle*

#### **1304 Sage grouse war tests limits of partnership in West**

*By M. Lavelle*  
► VIDEO



1322 & 1331

## INSIGHTS

### BOOKS ET AL.

#### **1306 SUMMER READING**

Eight book reviews from postdocs and grad students

### PERSPECTIVES

#### **1312 WHEN THE HUNTER BECOMES THE HUNTED**

Effective predator management relies on social acceptability as well as scientific evidence *By R. Woodroffe and S. M. Redpath*

#### **1314 AN ESCRT TO SEAL THE ENVELOPE**

Cellular machinery that remodels different lipid bilayers also closes the nuclear membrane *By W. I. Sundquist and K. S. Ullman*

#### **1316 IT'S ABOUT TIME FOR NEURAL CREST**

The unusual pluripotency of neural crest cells is inherited from embryonic stem cells *By S. Hoppler and G. N. Wheeler*  
► RESEARCH ARTICLE P. 1332

#### **1317 OUTPERFORMING NATURE'S MEMBRANES**

Ultrathin synthetic membranes that reach a record permeability can clean up organic solutions *By V. Freger*  
► REPORT P. 1347

#### **1319 ARE YOU WATERING YOUR LAWN?**

High-resolution data may help to devise effective water conservation strategies in urban areas around the world *By T. S. Hogue and S. Pincetl*

#### **1320 AFTER THE IRAN DEAL: MULTINATIONAL ENRICHMENT**

World powers should buy a stake in Iran's enrichment capacity and accept the same rules *By A. Glaser et al.*

#### **1322 A CHLAMYDIA VACCINE ON THE HORIZON**

Results of a new *Chlamydia* vaccine in mice should spur human clinical trials *By R. C. Brunham*  
► RESEARCH ARTICLE P. 1331

Science Staff ..... 1290  
New Products ..... 1383  
Science Careers ..... 1384





## 1316 & 1332

Neural crest cells retain their origins



## 1361

Relaying a signal to a G protein

### 1324 JOHN FORBES NASH JR. (1928–2015)

A distinguished mathematician and Nobel laureate dies tragically  
By *M. Shubik*

### LETTERS

#### 1325 GERMLINE GENE THERAPY: WE'RE READY

By *H. I. Miller*

#### 1325 RESEARCH ETHICS AND HEALTH CARE REFORM

By *J. G. Kahn and P. Hofmann*

#### 1326 SPITZER'S STELLAR WORK

By *M. W. Werner et al.*

#### 1326 TECHNICAL COMMENT ABSTRACTS

## RESEARCH

### IN BRIEF

1327 From *Science* and other journals

### REVIEW

#### 1330 OCEAN CIRCULATION

Observing the Atlantic Meridional Overturning Circulation yields a decade of inevitable surprises  
*M. A. Srokosz and H. L. Bryden*

REVIEW SUMMARY; FOR FULL TEXT:  
[dx.doi.org/10.1126/science.1255575](http://dx.doi.org/10.1126/science.1255575)

### RESEARCH ARTICLES

#### 1331 VACCINES

A mucosal vaccine against *Chlamydia trachomatis* generates two waves of protective memory T cells  
*G. Stary et al.*

RESEARCH ARTICLE SUMMARY; FOR FULL TEXT:  
[dx.doi.org/10.1126/science.aaa8205](http://dx.doi.org/10.1126/science.aaa8205)

► PERSPECTIVE P. 1322

#### 1332 NEURODEVELOPMENT

Shared regulatory programs suggest retention of blastula-stage potential in neural crest cells  
*E. Buitrago-Delgado et al.*

► PERSPECTIVE P. 1316

### REPORTS

#### 1336 INDUCED SEISMICITY

High-rate injection is associated with the increase in U.S. mid-continent seismicity  
*M. Weingarten et al.*

► NEWS STORY P. 1299; *SCIENCE ADVANCES* RESEARCH ARTICLE BY *F. R. WALSH III ET AL.*

#### 1340 POLARON DYNAMICS

Long-lived photoinduced polaron formation in conjugated polyelectrolyte-fullerene assemblies  
*R. C. Huber et al.*

#### 1344 BATTERIES

Topological defect dynamics in operando battery nanoparticles  
*A. Ulvestad et al.*

#### 1347 MEMBRANE FILTRATION

Sub-10 nm polyamide nanofilms with ultrafast solvent transport for molecular separation  
*S. Karan et al.*

► PERSPECTIVE P. 1317

#### 1352 BRAIN PROCESSING

Cortical information flow during flexible sensorimotor decisions  
*M. Siegel et al.*

#### 1355 COMETARY NUCLEI

The shape and structure of cometary nuclei as a result of low-velocity accretion  
*M. Jutzi and E. Asphaug*

#### 1358 GROUP DECISIONS

Shared decision-making drives collective movement in wild baboons  
*A. Strandburg-Peshkin et al.*

#### 1361 SIGNAL TRANSDUCTION

Structural basis for nucleotide exchange in heterotrimeric G proteins  
*R. O. Dror et al.*

#### 1365 PROTEIN DESIGN

Design of ordered two-dimensional arrays mediated by noncovalent protein-protein interfaces  
*S. Gonen et al.*

#### 1369 ENDOCYTOSIS

Endocytic sites mature by continuous bending and remodeling of the clathrin coat  
*O. Avinoam et al.*

### 1372 TRANSCRIPTION

Recruitment of RNA polymerase II by the pioneer transcription factor PHA-4  
*H.-T. Hsu et al.*

### 1376 DRUG DEVELOPMENT

Phthalimide conjugation as a strategy for in vivo target protein degradation  
*G. E. Winter et al.*



### DEPARTMENTS

#### 1291 EDITORIAL

Parks for science  
By *Gary Machlis and Marcia McNutt*

#### 1394 WORKING LIFE

Do it for love  
By *Marek Wagner*

### ON THE COVER



Olive baboon (*Papio anubis*) troops travel many kilometers each day as a group, remaining together even though group members often disagree about when and where to move.

High-resolution GPS tracking of almost all members of a single baboon troop reveals that movement decisions are shared, and despite differences in rank and social status among group mates, no single individual dominates these choices. See page 1358.

Photo: *Manoj Shah/Getty Images*

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 #R123488122. Publications Mail Agreement Number 1069524. 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.