

EDITORIAL

- 390 Iceberg Alert for NIH
Henry R. Bourne and Mark O. Lively

NEWS OF THE WEEK

- 394 A roundup of the week's top stories

NEWS & ANALYSIS

- 397 Needed Antarctic Upgrades Would Trim Science Budget
- 398 Data Dispute Revives Exoplanet Claim
- 399 Panel Votes to End Prevention Fund, Cut Economics Studies, Freeze NIH
- 400 Using Radiocarbon to Go Beyond Good Faith in Measuring CO₂ Emissions
- 401 U.S.'s Best Science and Math Teachers to Get Bonuses

NEWS FOCUS

- 402 Planetary Science Is Busting Budgets
>> *Science Podcast*
- 405 For China and Kazakhstan, No Meeting of the Minds on Water
- 408 Evolution Ottawa Meeting
Insulin May Guarantee the Honesty of Beetle's Massive Horn
>> *Science Express Report* by D. J. Emlen et al.
Texas Wildflower's Red Keeps It a Species
By the Skin of Their Teeth

LETTERS

- 410 Pollution in the Yangtze
H. Yang et al.
- Reducing Red Tape for Research in Europe
M. Da Graça Carvalho and M. Geoghegan-Quinn
- Stemming the U.S. HIV Epidemic: Act Local
J. Justman and W. M. El-Sadr

BOOKS ET AL.

- 412 Golden Holocaust
R. N. Proctor, reviewed by T. H. Brandon
- 413 No Time to Lose
P. Piot, reviewed by J. C. H. Tam

POLICY FORUM

- 414 Challenges to India's Pharmaceutical Patent Laws
B. N. Sampat et al.

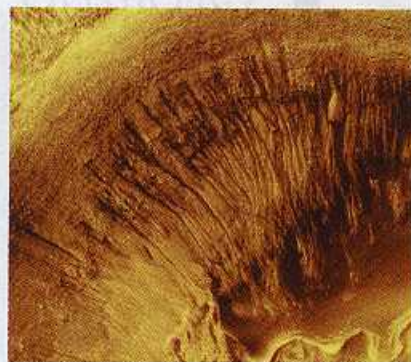
PERSPECTIVES

- 416 The Mind of a Male?
D. B. Chklovskii and C. I. Bargmann
>> *Research Article* p. 437
- 417 A Roadmap for the Assembly of Polyhedral Particles
J. de Graaf and L. Manna
>> *Report* p. 453
- 418 dSarm-ing Axon Degeneration
X. M. Yu and L. Luo
>> *Report* p. 481
- 420 HD6 Defensin Nanonets
A. J. Ouellette and M. E. Selsted
>> *Report* p. 477
- 421 Use and Abuse of RNAi to Study Mammalian Gene Function
W. G. Kaelin Jr.
- 423 Retrospective: Phillip V. Tobias (1925–2012)
T. D. White

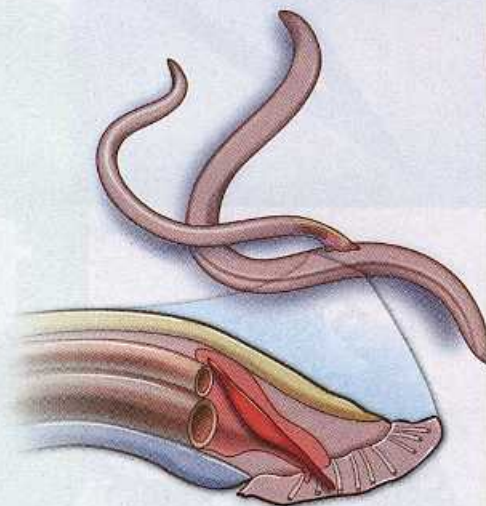
SCIENCE PRIZE ESSAYS

- 424 Aipotu: Simulation from Nucleotides to Populations and Back Again
B. T. White
- 426 Engaging Students in Molecular Biology via Case-Based Learning
M. Bergland et al.

CONTENTS continued >>



page 402



pages 416 & 437



COVER

False-colored scanning electron microscopy image of innate immune cells and the parasite *Trypanosoma brucei* (purple; length: 15 micrometers) in an infected mouse liver. The parasite is transmitted between mammalian hosts, including humans, by the bite of infected tsetse flies and is responsible for human sleeping sickness, a lethal disease that is a serious problem in Africa. See page 463.

Image: Gilles Vanwalleghem, Daniel Monteyne, Etienne Pays, and David Pérez-Morga, Laboratory of Molecular Parasitology and Center for Microscopy and Molecular Imaging, Université Libre de Bruxelles, Gosselies, Belgium

DEPARTMENTS

- 388 This Week in *Science*
- 391 Editors' Choice
- 392 *Science* Staff
- 428 AAAS News & Notes
- 488 New Products
- 489 *Science* Careers

REVIEW

- 431 **New Paradigms in Type 2 Immunity**
B. Pulendran and D. Artis

BREVIA

- 436 **Explosive Backpacks in Old Termite Workers**
J. Šobotník et al.
As *Neocapritermes taracua* termites age, they develop a suicidal toxic apparatus that bursts during aggressive encounters.
>> Science Podcast

RESEARCH ARTICLE

- 437 **The Connectome of a Decision-Making Neural Network**
T. A. Jarrell et al.
The complete wiring structure of the synaptic network governing mating behavior of male nematodes is revealed.
>> Perspective p. 416

REPORTS

- 444 **Binary Interaction Dominates the Evolution of Massive Stars**
H. Sana et al.
Analysis of a sample of massive stars in our Galaxy implies that most will interact with a nearby companion.
- 446 **Excitation of Orbital Angular Momentum Resonances in Helically Twisted Photonic Crystal Fiber**
G. K. L. Wong et al.
Adding chirality to the structure of a photonic crystal fiber may provide another route to controlling light transmission.
- 450 **Plasmonic Nanolaser Using Epitaxially Grown Silver Film**
Y.-J. Lu et al.
An atomically smooth layer of silver enhances the performance of nanophotonic devices.
- 453 **Predictive Self-Assembly of Polyhedra into Complex Structures**
P. F. Damasceno et al.
Two parameters relating to particle shape and nearest neighbors reveal the preferred packing of complex structures.
>> Perspective p. 417; Science Podcast
- 457 **The Tides of Titan**
L. Iess et al.
Gravity measurements by the Cassini spacecraft suggest that Saturn's moon Titan hosts a subsurface ocean.

- 459 **Isotropic Events Observed with a Borehole Array in the Chelungpu Fault Zone, Taiwan**
K.-F. Ma et al.
High-pressure fluids induce fracturing along preexisting cracks near the site of a recent earthquake.

- 463 **Adenylate Cyclases of *Trypanosoma brucei* Inhibit the Innate Immune Response of the Host**
D. Salmon et al.
Parasites release cyclic adenosine monophosphate when swallowed up by myeloid cells, thereby turning off a host defense pathway.

- 467 **GFAJ-1 Is an Arsenate-Resistant, Phosphate-Dependent Organism**
T. J. Erb et al.

- 470 **Absence of Detectable Arsenate in DNA from Arsenate-Grown GFAJ-1 Cells**
M. L. Reaves et al.
Claims of arsenic substitution for phosphorus in the biomolecules of a Mono Lake bacterium are not independently reproduced.

- 473 **The Structure and Catalytic Cycle of a Sodium-Pumping Pyrophosphatase**
J. Kelloso et al.
Structures of a *Thermotoga maritima* sodium ion-pumping, membrane-integral pyrophosphatase provide a model of the pumping mechanism.

- 477 **Human α -Defensin 6 Promotes Mucosal Innate Immunity Through Self-Assembled Peptide Nanonets**
H. Chu et al.
Rather than killing bacteria directly, a gut antimicrobial peptide forms netlike structures that ensnare invading bacteria.
>> Perspective p. 420

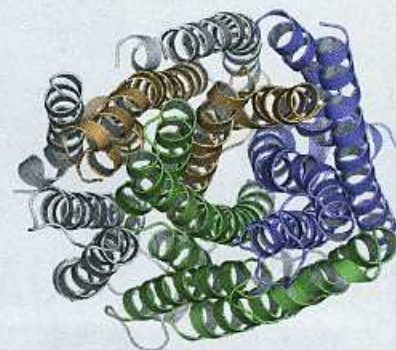
- 481 **dSarm/Sarm1 Is Required for Activation of an Injury-Induced Axon Death Pathway**
J. M. Osterloh et al.
Mutations in a scaffold protein block the Wallerian degeneration of axons in flies and mice.
>> Perspective p. 418

- 485 **Memory's Penumbra: Episodic Memory Decisions Induce Lingering Mnemonic Biases**
K. Duncan et al.
It takes time for the hippocampus to switch between laying down new memories and recalling old ones.

CONTENTS continued >>



page 450



page 473