

1200 New York Avenue, NW  
Washington, DC 20005

Editorial: 202-326-6550, FAX 202-289-7562

News: 202-326-6581, FAX 202-371-9277

Bateman House, 82-88 Hills Road  
Cambridge, UK CB2 2LQ

+44 (0) 1223 326500, FAX +44 (0) 1223 326501

**SUBSCRIPTION SERVICES** For change of address, missing issues, new orders and renewals, and payment questions: 866-434-AAAS (227) or 202-326-6417, FAX 202-842-1065. Mailing addresses: AAAS, P.O. Box 96178, Washington, DC 20090-6178 or AAAS Member Services, 1200 New York Avenue, NW, Washington, DC 20005

**INSTITUTIONAL SITE LICENSES** please call 202-326-6755 for any questions or information

**REPRINTS:** Author Inquiries 800-635-7181

Commercial Inquiries 803-359-4578

**PERMISSIONS** 202-326-7074, FAX 202-682-0816

**MEMBER BENEFITS** AAAS/Barnes&Noble.com bookstore www.aaas.org/bn; AAAS Online Store www.apisource.com/aaas/ code MKB6; AAAS Travels: Betchart Expeditions 800-252-4910; Apple Store www.apple/epstore/aaas; Bank of America MasterCard 1-800-833-6262 priority code FAA3UY; Cold Spring Harbor Laboratory Press Publications www.cshlpress.com/affiliates/aaas.htm; GEICO Auto Insurance www.geico.com/landingpage/go51.htm?logo=17624; Hertz 800-654-2200 CDP#343457; Office Depot https://bsd.office Depot.com/portalLogin.do; Seabury & Smith Life Insurance 800-424-9883; Subaru VIP Program 202-326-6417; VIP Moving Services www.vipmayflower.com/domestic/index.html; Other Benefits: AAAS Member Services 202-326-6417 or www.aaasmember.org.

science\_editors@aaas.org (for general editorial queries)

science\_letters@aaas.org (for queries about letters)

science\_reviews@aaas.org (for returning manuscript reviews)

science\_bookrevs@aaas.org (for book review queries)

Published by the American Association for the Advancement of Science (AAAS). *Science* serves its readers as a forum for the presentation and discussion of important issues related to the advancement of science, including the presentation of minority or conflicting points of view, rather than by publishing only material on which a consensus has been reached. Accordingly, all articles published in *Science*—including editorials, news and comment, and book reviews—are signed and reflect the individual views of the authors and not official points of view adopted by AAAS or the institutions with which the authors are affiliated.

AAAS was founded in 1848 and incorporated in 1874. Its mission is to advance science, engineering, and innovation throughout the world for the benefit of all people. The goals of the association are to: enhance communication among scientists, engineers, and the public; promote and defend the integrity of science and its use; strengthen support for the science and technology enterprise; provide a voice for science on societal issues; promote the responsible use of science in public policy; strengthen and diversify the science and technology workforce; foster education in science and technology for everyone; increase public engagement with science and technology; and advance international cooperation in science.

**INFORMATION FOR AUTHORS**

See pages 634 and 635 of the 1 February 2008 issue or access www.sciencemag.org/about/authors

EDITOR-IN-CHIEF **Bruce Alberts**  
EXECUTIVE EDITOR **Monica M. Bradford**

DEPUTY EDITORS NEWS EDITOR

**R. Brooks Hanson, Barbara R. Jasny, Colin Norman**  
**Katrina L. Kelnor**

**EDITORIAL SUPERVISORY SENIOR EDITOR** Phillip D. Szuromi; **SENIOR EDITOR/PERSPECTIVES** Lisa D. Chong; **SENIOR EDITORS** Gilbert J. Chin, Pamela J. Hines, Paula A. Kiberstis (Boston), Marc S. Lavine (Toronto), Beverly A. Purnell, L. Bryan Ray, Guy Riddihough, H. Jesse Smith, Valda Vinson; **ASSOCIATE EDITORS** Kristen L. Mueller, Jake S. Yeston, Laura M. Zahn; **ONLINE EDITOR** Stewart Willis; **ASSOCIATE ONLINE EDITORS** Robert Frederick, Tara S. Marathe; **WEB CONTENT DEVELOPER** Martyn Green; **BOOK REVIEW EDITOR** Sherman J. Suter; **ASSOCIATE LETTERS EDITOR** Jennifer Sills; **EDITORIAL MANAGER** Cara Tate; **SENIOR COPY EDITORS** Jeffrey E. Cook, Cynthia Howe, Harry Jach, Barbara P. Ordway, Trista Wagoner; **COPY EDITORS** Chris Filiatreau, Lauren Kmec; **EDITORIAL COORDINATORS** Carolyn Kyle, Beverly Shields; **PUBLICATIONS ASSISTANTS** Ramatoulaye Diop, Joi S. Granger, Jeffrey Hearn, Lisa Johnson, Scott Miller, Jerry Richardson, Jennifer A. Seibert, Brian White, Anita Wyner; **EDITORIAL ASSISTANTS** Carlos L. Durham, Emily Guise, Patricia M. Moore; **EXECUTIVE ASSISTANT** Sylvia S. Kihara; **ADMINISTRATIVE SUPPORT** Maryrose Madrid  
**NEWS DEPUTY NEWS EDITORS** Robert Coontz, Eliot Marshall, Jeffrey Mervis, Leslie Roberts; **CONTRIBUTING EDITORS** Elizabeth Culotta, Polly Shulman; **NEWS WRITERS** Yudhijit Bhattacharjee, Adrian Cho, Jennifer Couzin, David Grimm, Constance Holden, Jocelyn Kaiser, Richard A. Kerr, Eli Kintisch, Robert Lawler (New England), Greg Miller, Elizabeth Pennisi, Andrew F. Service (Pacific NW), Erik Stokstad; **INTERN** Rachel Zerkowitz; **CONTRIBUTING CORRESPONDENTS** Jon Cohen (San Diego, CA), Daniel Ferber, Ann Gibbons, Robert Koenig, Mitch Leslie, Charles C. Mann, Virginia Morell, Evelyn Strauss, Guy Taubes; **COPY EDITORS** Linda B. Felaco, Melvin Gatling, Melissa Raimondi; **ADMINISTRATIVE SUPPORT** Scherraine Mack, Fannie Groom; **BUREAU NEW ENGLAND:** 207-549-7755, San Diego, CA: 760-942-3252, FAX 760-942-4979, Pacific Northwest: 503-963-1940

**PRODUCTION DIRECTOR** James Landry; **SENIOR MANAGER** Wendy K. Shank; **ASSISTANT MANAGER** Rebecca Doshi; **SENIOR SPECIALISTS** Steve Forrester, Chris Redwood; **SPECIALIST** Anthony Rosen; **PREFLIGHT DIRECTOR** David M. Tompkins; **MANAGER** Marcus Spiegel

**ART DIRECTOR** Yael Kats; **ASSOCIATE ART DIRECTOR** Laura Creveling; **ILLUSTRATORS** Chris Bickel, Katharine Suttiff; **SENIOR ART ASSOCIATES** Holly Bishop, Preston Huey, Nayomi Kevitayagala; **ART ASSOCIATE** Jessica Newfield; **PHOTO EDITOR** Leslie Blizard

**SCIENCE INTERNATIONAL**

**EUROPE** (science@science-int.co.uk) **EDITORIAL: INTERNATIONAL MANAGING EDITOR** Andrew M. Sugden; **SENIOR EDITOR/PERSPECTIVES** Julia Fahrenkamp-Uppenbrink; **SENIOR EDITORS** Caroline Ash, Stella M. Hurtle, Ian S. Osborne, Peter Stern; **ASSOCIATE EDITOR** Maria Cruz; **EDITORIAL SUPPORT** Deborah Dennison, Rachel Roberts, Alice Whaley; **ADMINISTRATIVE SUPPORT** John Cannell, Janet Clements; **NEWS: EUROPE NEWS EDITOR** John Travis; **DEPUTY NEWS EDITOR** Daniel Clerly; **CONTRIBUTING CORRESPONDENTS** Michael Balter (Paris), John Bohannon (Vienna), Martin Enserink (Amsterdam and Paris), Gretchen Vogel (Berlin); **INTERN** Sara Coelho

**ASIA** Japan Office: Asca Corporation, Eiko Ishioka, Fusako Tamura, 1-8-13, Hirano-cho, Chuo-ku, Osaka-shi, Osaka, 541-0046 Japan; +81 (0) 6 202 6272, FAX +81 (0) 6 202 6271; asca@os.gulf.or.jp; **ASIA NEWS EDITOR** Richard Stone (Beijing: rstone@aaas.org); **CONTRIBUTING CORRESPONDENTS** Dennis Normile (Japan: +81 (0) 3 3391 0630, FAX +81 (0) 3 5936 3531; dnormile@gol.com); Hao Xin (China: +86 (0) 10 6307 4439 or 6307 3676, FAX +86 (0) 10 6307 4358; cindyhao@gmail.com); Pallava Bagla (South Asia: +91 (0) 11 2271 2896; pbagla@vsnl.com)

EXECUTIVE PUBLISHER **Alan I. Leshner**  
PUBLISHER **Beth Rosner**

**FULFILLMENT SYSTEMS AND OPERATIONS** (membership@aaas.org); **DIRECTOR** Waylon Butler; **SENIOR SYSTEMS ANALYST** Jonny Blaker; **CUSTOMER SERVICE SUPERVISOR** Pat Butler; **SPECIALISTS** Latoya Casteel, LaVonda Crawford, Vicki Linton, April Marshall; **DATA ENTRY SUPERVISOR** Cynthia Johnson; **SPECIALISTS** Eintou Bowden, Tarrika Hill, William Jones

**BUSINESS OPERATIONS AND ADMINISTRATION DIRECTOR** Deborah Rivera-Wienhold; **ASSISTANT DIRECTOR, BUSINESS OPERATIONS** Randy Yi; **MANAGER, BUSINESS ANALYSIS** Michael LoBue; **MANAGER, BUSINESS OPERATIONS** Jessica Tierney; **FINANCIAL ANALYSTS** Priti Pamnani, Celeste Troxler; **RIGHTS AND PERMISSIONS: ADMINISTRATOR** Emilie David; **ASSOCIATE** Elizabeth Sandler; **MARKETING DIRECTOR** John Meyers; **MARKETING MANAGER** Allison Pritchard; **MARKETING ASSOCIATES** Aimee Aponte, Alison Chandler, Mary Ellen Crowley, Marcia Leach, Julianne Wielga, Wendy Wise; **INTERNATIONAL MARKETING MANAGER** Wendy Sturley; **MARKETING EXECUTIVE** Jennifer Reeves; **MARKETING/MEMBER SERVICES EXECUTIVE** Linda Rusik; **DIRECTOR, SITE LICENSING** Tom Ryan; **DIRECTOR, CORPORATE RELATIONS** Eileen Bernadette Moran; **PUBLISHER RELATIONS, RESOURCES SPECIALIST** Kiki Forsythe; **SENIOR PUBLISHER RELATIONS SPECIALIST** Catherine Holland; **PUBLISHER RELATIONS, EAST COAST** Phillip Smith; **PUBLISHER RELATIONS, WEST COAST** Philip Tsolakidis; **FULFILLMENT SUPERVISOR** Iquo Edim; **ELECTRONIC MEDIA: MANAGER** Lizabeth Harman; **PROJECT MANAGER** Trista Snyder; **ASSISTANT MANAGER** Lisa Stanford; **SENIOR PRODUCTION SPECIALISTS** Christopher Coleman, Walter Jones; **PRODUCTION SPECIALISTS** Nichele Johnston, Kimberly Oster

**ADVERTISING DIRECTOR, WORLDWIDE AD SALES** Bill Moran

**PRODUCT** (science\_advertising@aaas.org); **MIDWEST/WEST COAST/W. CANADA** Rick Bongiovanni: 330-405-7080, FAX 330-405-7081; **EAST COAST** E. CANADA Laurie Faraday: 508-747-9395, FAX 617-507-8189; **UK/EUROPE/ASIA** Roger Gonçalves: TEL/FAX +41 43 234 1358; **JAPAN** Mashy Yoshikawa: +81 (0) 3 3235 5961, FAX +81 (0) 3 3235 5852; **SENIOR TRAFFIC ASSOCIATE** Deandra Simms

**COMMERCIAL EDITOR** Sean Sanders: 202-326-6430

**PROJECT DIRECTOR, OUTREACH** Brianna Blaser

**CLASSIFIED** (advertise@sciencecareers.org); **US: RECRUITMENT SALES MANAGER** Ian King: 202-326-6528, FAX 202-289-6742; **INSIDE SALES MANAGER: MIDWEST/CANADA** Daryl Anderson: 202-326-6543; **INSIDE SALES REPRESENTATIVE** Karen Foote: 202-326-6740; **KEY ACCOUNT MANAGER** Joribah Able; **NORTHEAST** Alexis Fleming: 202-326-6578; **SOUTHEAST** Tina Burks: 202-326-6577; **WEST** Nicholas Hintzbide: 202-326-6533; **SALES COORDINATORS** Erika Foad, Rohan Edmondson, Shirley Young; **INTERNATIONAL SALES MANAGER** Tracy Holmes: +44 (0) 1223 326255, FAX +44 (0) 1223 326532; **SALES** Susanne Kharraz, Dan Pennington, Alex Palmer; **SALES ASSISTANT** Louise Moore; **JAPAN** Mashy Yoshikawa: +81 (0) 3 3235 5961, FAX +81 (0) 3 3235 5852; **ADVERTISING PRODUCTION OPERATIONS MANAGER** Deborah Tompkins; **SENIOR PRODUCTION SPECIALIST/GRAPHIC DESIGNER** Amy Hardestack; **SENIOR PRODUCTION SPECIALIST** Robert Buck; **SENIOR TRAFFIC ASSOCIATE** Christine Hall; **PUBLICATIONS ASSISTANT** Mary Lagnaoui

**AAAS BOARD OF DIRECTORS** RETIRING PRESIDENT, CHAIR David Baltimore; PRESIDENT James J. McCarthy; PRESIDENT-ELECT Peter C. Agre; TREASURER David E. Shaw; CHIEF EXECUTIVE OFFICER Alan I. Leshner; BOARD LYNN W. ENQUIST, Susan M. Fitzpatrick, Alice Gadd, Linda P. B. Kethei, Nancy Knowlton, Cherry A. Murray, Thomas D. Pollard, Thomas A. Woolsey



ADVANCING SCIENCE. SERVING SOCIETY

**SENIOR EDITORIAL BOARD**

**John I. Brauman**, Chair, Stanford Univ.  
**Richard Lockard**, Harvard Univ.  
**Robert May**, Univ. of Oxford  
**Marcia McClut**, Monterey Bay Aquarium Research Inst.  
**Linda Partridge**, Univ. College London  
**Vera C. Rubin**, Carnegie Institution  
**Christopher R. Somerville**, Univ. of California, Berkeley

**BOARD OF REVIEWING EDITORS**

**Joanna Aizenberg**, Harvard Univ.  
**R. McNeill Alexander**, Leeds Univ.  
**David Altshuler**, Broad Institute  
**Arturo Alvarez-Buylla**, Univ. of California, San Francisco  
**Richard Amasino**, Univ. of Wisconsin, Madison  
**Angelika Amon**, MIT  
**Meinrat O. Andreae**, Max Planck Inst., Mainz  
**Kristi S. Anseth**, Univ. of Colorado  
**John A. Bargh**, Yale Univ.  
**Cornelia I. Bargmann**, Rockefeller Univ.  
**Ben Barres**, Stanford Medical School  
**Marisa Bartolomei**, Univ. of Penn. School of Med.  
**Ray H. Baughman**, Univ. of Texas, Dallas  
**Stephen J. Benkovic**, Penn State Univ.  
**Michael J. Bevan**, Univ. of Washington  
**Ton Bisseling**, Wageningen Univ.  
**Mina Bissell**, Lawrence Berkeley National Lab  
**Peer Bork**, EMBL  
**Dianna Bowles**, Univ. of York  
**Robert W. Boyd**, Univ. of Rochester  
**Paul M. Brakefield**, Leiden Univ.  
**Dennis Bray**, Univ. of Cambridge  
**Stephen Buratowski**, Harvard Medical School  
**Joseph A. Burns**, Cornell Univ.  
**William P. Butz**, Population Reference Bureau  
**Peter Carmeliet**, Univ. of Leuven, VIB  
**Gerbrand Ceder**, MIT  
**Mildred Cho**, Stanford Univ.  
**David Clapham**, Children's Hospital, Boston  
**David Clary**, Oxford University  
**J. M. Claverie**, CNRS, Marseille

**Jonathan D. Cohen**, Princeton Univ.  
**Stephen M. Cohen**, Temasek Life Sciences Lab, Singapore  
**Robert H. Crabtree**, Yale Univ.  
**F. Fleming Crim**, Univ. of Wisconsin  
**William Cumberland**, Univ. of California, Los Angeles  
**Jennifer A. Doudna**, Univ. of California, Berkeley  
**Jeff L. Dangl**, Univ. of North Carolina  
**Stanislas Dehaene**, Collège de France  
**Edward DeLong**, MIT  
**Emmanouil T. Dermitzakis**, Wellcome Trust Sanger Inst.  
**Robert Desimone**, MIT  
**Dennis Discher**, Univ. of Pennsylvania  
**Scott C. Doney**, Woods Hole Oceanographic Inst.  
**Peter J. Donovan**, Univ. of California, Irvine  
**W. Ford Doolittle**, Dalhousie Univ.  
**Jennifer A. Doudna**, Univ. of California, Berkeley  
**Julian Downward**, Cancer Research UK  
**Denis Duboule**, Univ. of Geneva/EPL Lausanne  
**Christopher Dye**, WHO  
**Richard Ellis**, Cal Tech  
**Gerhard Ertl**, Fritz-Haber-Institut, Berlin  
**Douglas H. Erwin**, Smithsonian Institution  
**Mark Estelle**, Indiana Univ.  
**Barry Everitt**, Univ. of Cambridge  
**Paul G. Falkowski**, Rutgers Univ.  
**Ernst Fehr**, Univ. of Zurich  
**Tom Fencher**, Univ. of Copenhagen  
**Alain Fischer**, INSERM  
**Scott E. Fraser**, Cal Tech  
**Chris D. Frith**, Univ. College London  
**Wulfam Gerstner**, EPL Lausanne  
**Charles Godfrey**, Univ. of Oxford  
**Diane Griffin**, Johns Hopkins Bloomberg School of Public Health  
**Christian Haas**, Ludwig Maximilians Univ.  
**Niels Hansen**, Technical Univ. of Denmark  
**Dennis L. Hartmann**, Univ. of Washington  
**Chris Hawkesworth**, Univ. of Bristol  
**Martin Heimann**, Max Planck Inst., Jena  
**James A. Hendler**, Rensselaer Polytechnic Inst.  
**Ray Hilborn**, Univ. of Washington  
**Ove Hoegh-Guldberg**, Univ. of Queensland  
**Ronald R. Hoy**, Cornell Univ.  
**Olli Ikkala**, Helsinki Univ. of Technology  
**Meyer B. Jackson**, Univ. of Wisconsin Med. School

**Stephen Jackson**, Univ. of Cambridge  
**Steven Jacobsen**, Univ. of California, Los Angeles  
**Peter Jonas**, Universität Freiburg  
**Barbara B. Kahn**, Harvard Medical School  
**Eniel Kahne**, Harvard Univ.  
**Gerard Karsenty**, Columbia Univ. College of P&S  
**Bernhard Kermer**, Max Planck Inst., Stuttgart  
**Elizabeth A. Kellog**, Univ. of Missouri, St. Louis  
**Alan B. Krueger**, Princeton Univ.  
**Nee Kump**, Penn State Univ.  
**Mitchell A. Lazar**, Univ. of Pennsylvania  
**Norman L. Letvin**, Beth Israel Deaconess Medical Center  
**Olle Lindvall**, Univ. Hospital, Lund  
**John Lis**, Cornell Univ.  
**Richard Lockard**, Harvard Univ.  
**Ke Lu**, Chinese Acad. of Sciences  
**Andrew P. MacKenzie**, Univ. of St Andrews  
**Raul Madariaga**, Ecole Normale Supérieure, Paris  
**Anne Maquart**, Univ. of St Andrews  
**Virginia Miller**, Washington Univ.  
**Yasushi Miyashita**, Univ. of Tokyo  
**Richard Morris**, Univ. of Edinburgh  
**Edward Moser**, Norwegian Univ. of Science and Technology  
**Naoto Nagasawa**, Univ. of Tokyo  
**James Nelson**, Stanford Univ. School of Med.  
**Timothy W. Nilsen**, Case Western Reserve Univ.  
**Roeland Nolte**, Univ. of Nijmegen  
**Helga Nowotny**, European Research Advisory Board  
**Eric N. Olson**, Univ. of Texas, SW  
**Elin O'Shea**, Harvard Univ.  
**Erin Ostrom**, Indiana Univ.  
**Jonathan T. Overpeck**, Univ. of Arizona  
**John Pendry**, Imperial College  
**Phéliepe Poulin**, CNRS  
**Mary Power**, Univ. of California, Berkeley  
**Molly Pzeworski**, Univ. of Chicago  
**David J. Read**, Univ. of Sheffield  
**Les Real**, Emory Univ.  
**Colin Renfrew**, Univ. of Cambridge  
**Trevor Robbins**, Univ. of Cambridge  
**Barbara A. Romanowicz**, Univ. of California, Berkeley  
**Edward M. Rubin**, Lawrence Berkeley National Lab  
**Jürgen Sandkühler**, Medical Univ. of Vienna  
**David S. Schimel**, National Center for Atmospheric Research

**David W. Schindler**, Univ. of Alberta  
**Georg Schulz**, Albert-Ludwigs-Universität  
**Paul Schulze-Lefert**, Max Planck Inst., Cologne  
**Christine Seidman**, Harvard Medical School  
**Terence J. Sejnowski**, The Salk Institute  
**David Sibley**, Washington Univ.  
**Montgomery Slatkin**, Univ. of California, Berkeley  
**George Somero**, Stanford Univ.  
**Joan Steitz**, Yale Univ.  
**Elisbeth Stern**, ETH Zürich  
**Jerome Strauss**, Virginia Commonwealth Univ.  
**Glen Telling**, Univ. of Kentucky  
**Marc Tessier-Lavigne**, Genentech  
**Jurg Tschopp**, Univ. of Lausanne  
**Michiel van der Klis**, Astronomical Inst. of Amsterdam  
**Derek van der Kooy**, Univ. of Toronto  
**Bert Vogelstein**, Johns Hopkins Univ.  
**Ulrich H. von Andrian**, Harvard Medical School  
**Christopher A. Walsh**, Harvard Medical School  
**Graham Warren**, Yale Univ. School of Med.  
**Clon Watkins**, Univ. of Dundee  
**Detlef Weigel**, Max Planck Inst., Tübingen  
**Brian Westfahl**, Univ. of California, San Francisco  
**Ellen D. Williams**, Univ. of Maryland  
**Ian A. Wilson**, The Scripps Res. Inst.  
**Jerry Workman**, Stowers Inst. for Medical Research  
**John R. Yates III**, The Scripps Res. Inst.  
**Jan Zaenen**, Leiden Univ.  
**Martin Zatz**, NIMH, NIH  
**Huda Zoghbi**, Baylor College of Medicine  
**Maria Zuber**, MIT

**BOOK REVIEW BOARD**

**John Aldrich**, Duke Univ.  
**David Bloom**, Harvard Univ.  
**Angela Creager**, Princeton Univ.  
**Richard Swedner**, Univ. of Chicago  
**Ed Wasserman**, DuPont  
**Lewis Wolpert**, Univ. College London