

EXECUTIVE EDITOR **Monica M. Bradford**
MANAGING EDITOR, RESEARCH JOURNALS **Katrina L. Kugler**
DEPUTY EDITORS **Barbara R. Jasny, Andrew M. Kelner, Valda J. Vinson**

EDITORIAL SENIOR EDITORS/COMMENTARY Lisa D. Chong, Brad Wible; **SENIOR EDITORS** Gilbert J. Chin, Pamela J. Hines, Paula A. Kiberstis (Boston), Marc S. Lavine (Toronto), Beverly A. Purnell, L. Bryan Ray, Guy Riddiough, H. Jesse Smith, Phillip D. Szuroim (Tennessee), Jake S. Yeston, Laura M. Zahn (San Diego); **ASSOCIATE EDITORS** Melissa R. McCartney (Education Projects), Kristen L. Mueller, Jelena Stajic, Sacha Vignieri (Oregon), Nicholas S. Wigginton (Michigan); **BOOK REVIEW EDITOR** Sherman J. Suter; **ASSOCIATE LETTERS EDITOR** Jennifer Sills; **EDITORIAL MANAGER** Cara Tate; **SENIOR COPY EDITORS** Jeffrey E. Cook, Chris Filialette, Cynthia Howe, Harry Jaj, Lauren Kmeck, Barbara P. Ordway, Trista Wagoner; **SENIOR EDITORIAL COORDINATORS** Carolyn Kyle, Beverly Shields; **EDITORIAL COORDINATORS** Ramatoulaye Diop, Joi S. Granger, Lisa Johnson, Anita Wynn; **PUBLICATIONS ASSISTANTS**, Aneera Dobbins, Jeffrey Hearn, Dona Mathieu, Le-Toya Wayne Flood, Shannon McCMahon, Scott Miller, Jerry Richardson, Brian Whyte; **EDITORIAL ASSISTANT** Patricia M. Moore; **EXECUTIVE ASSISTANT** Alison Crawford; **ADMINISTRATIVE SUPPORT** Maryrose Madrid

EDITORIAL DIRECTOR, WEB AND NEW MEDIA Stewart Wills; **SENIOR WEB EDITOR** Sarah Crespi; **WEB DEVELOPMENT MANAGER** Martyn Green; **INTERNS** Kristine Hamilton, Linda Poon

NEWS DEPUTY NEWS EDITORS Robert Coontz, Elizabeth Colutta, David Grimm (Online), Eliot Marshall, Jeffrey Mervis, Leslie Roberts, Richard Stone, John Travis; **CONTRIBUTING EDITOR** Polly Shulman; **NEWS WRITERS** Yudhijit Bhattacharjee, Adrian Cho, Jennifer Couzin-Frankel, Carolyn Gradling, Jocelyn Kaiser, Richard A. Kerr, David Malakoff, Elizabeth Pennisi, Robert F. Service (Pacific NW), Erik Stokstad, Emily Underwood; **WEB DEVELOPER** Daniel Berger; **SOCIAL MEDIA STRATEGIST** Meghna Schadev; **INTERNS** Kelly Servick, Nisha Giridharan, Senah Yeboah-Sampong, Rachel Walther; **CONTRIBUTING CORRESPONDENTS** John Bohannon, Jon Cohen (San Diego, CA), Ann Gibbons, Sam Khan, El Kintisch, Andrew Lawler, Mitch Leslie, Charles C. Mann, Virginia Morell; **COPY EDITOR** Kara Estelle; **ADMINISTRATIVE SUPPORT** Scherraine Mack; **BUREAU SAN DIEGO, CA**: 760-942-3252, FAX 760-942-4979; **Pacific Northwest**: 503-963-1940

PRODUCTION DIRECTOR Wendy K. Shank; **ASSISTANT MANAGER** Rebecca Doshi; **SENIOR SPECIALISTS** Steve Forrester, Anthony Rosen; **SPECIALIST** Jacob Hedrick **PREFLIGHT DIRECTOR** David M. Tompkins; **MANAGER** Marcus Spiegler; **SPECIALISTS** Jason Hillman, Tara Kelly

ART DIRECTOR Yael Fitzpatrick; **ASSOCIATE ART DIRECTOR** Laura Creveling; **SENIOR ILLUSTRATORS** Chris Bickel, Katharine Sutliff; **ILLUSTRATOR** Valerie Altounian; **SENIOR ART ASSOCIATES** Holly Bishop, Preston Huey; **ART ASSOCIATES** Kay Engman, Garvin Grullón, Chrystal Smith; **PHOTO EDITOR** Leslie Blizard

SCIENCE INTERNATIONAL

EUROPE (science@science-int.co.uk) **EDITORIAL: INTERNATIONAL MANAGING EDITOR** Andrew M. Sugden; **SENIOR EDITOR/COMMENTARY** Julia Fahrenkamp-Uppenbrink; **SENIOR EDITORS** Caroline Ash, Stella M. Hurlley, Ian S. Osborne, Peter Stern; **ASSOCIATE EDITOR** Maria Cruz; **CONTRIBUTING EDITOR** Helen Pickersgill; **EDITORIAL SUPPORT** Rachel Roberts, Alice Whaley; **ADMINISTRATIVE SUPPORT** Alex Brown, Janet Clements, Joan Cuthbert; **NEWS: DEPUTY NEWS EDITOR, U.K.** Daniel Clercy; **CONTRIBUTING EDITOR, EUROPE** Martin Emerink; **CONTRIBUTING CORRESPONDENTS** Michael Balter (Paris), Kai Kupferschmidt (Berlin), Gretchen Vogel (Berlin)

ASIA Japan Office: Asca Corporation, Tomoko Furusawa, Rustic Bldg. 7F, 77 Tenjin-cho, Shinjuku-ku, Tokyo 162-0808, Japan; +81 3 6802 4616, FAX +81 3 6802 4615, inquiry@sciencemag.jp; **CONTRIBUTING EDITOR, ASIA** Maria Hivendahl [China: mhivens@aaas.org]; **CONTRIBUTING CORRESPONDENTS** Dennis Morille [Japan: dnormille@xol.com]; Christina Larson [China: christina.larson@gmail.com]; Hao Xin [China: cindyhao@gmail.com]; Pallava Bagla [South Asia: pallava.bagla@gmail.com]

LATIN AMERICA CONTRIBUTING CORRESPONDENT Lizzie Wade [Mexico City: lizziewade@outlook.com]

FULFILLMENT SYSTEMS AND OPERATIONS (membership@aaas.org); **CUSTOMER SERVICE SUPERVISOR** Pat Butler; **SPECIALISTS** LaToya Casteel, Michelle Oforidine, April Marshall; **MANAGER, DATA ENTRY** Mickie Napoleoni; **DATA ENTRY SPECIALISTS** JJ Regan, Jaimee Wise, Fiona Giblin

BUSINESS OPERATIONS AND ADMINISTRATION DIRECTOR Deborah Rivera-Fuenholl; **BUSINESS SYSTEMS AND FINANCIAL ANALYSIS DIRECTOR** Randy Yi; **MANAGER OF FULFILLMENT SYSTEMS** Neal Hawkins; **SYSTEMS ANALYST** Nicole Mehmedovich; **MANAGER, BUSINESS ANALYSIS** Eric Knott; **MANAGER, BUSINESS OPERATIONS** Jessica Tierney; **BUSINESS ANALYSTS** Cory Lipman, Cooper Tilton, Celeste Troxler; **FINANCIAL ANALYST** Jeremy Clay; **RIGHTS AND PERMISSIONS: ASSISTANT DIRECTOR** Emilie David; **ASSOCIATE** Elizabeth Sandler; **MARKETING DIRECTOR** Ian King; **MARKETING MANAGERS** Alison Chandler, Julianne Wielga, Justin Sawyers; **MARKETING ASSOCIATES** Mary Ellen Crowley, Elizabeth Sattler, Rebecca Rifkin; **SENIOR MARKETING EXECUTIVE** Jennifer Reeves; **DIRECTOR, SITE LICENSING** Tom Ryan; **DIRECTOR, CORPORATE RELATIONS** Eileen Bernadette Moran; **SENIOR PUBLISHER RELATIONS SPECIALIST** Kiki Forsythe; **PUBLISHER RELATIONS MANAGER** Catherine Holland; **PUBLISHER RELATIONS, EASTERN REGION** Keith Layson; **PUBLISHER RELATIONS, WESTERN REGION** Ryan Rexroth; **CUSTOMER RELATIONS MANAGER** Iquo Edim; **CUSTOMER RELATIONS ANALYSTS** Simon Chong, Lana Guz; **ASSOCIATE DIRECTOR, MARKETING** Christina Schlecht; **MARKETING ASSOCIATES** Paulina Curto, Mitchell Edmund; **ELECTRONIC MEDIA DIRECTOR** Lizbeth Harman; **ASSISTANT MANAGER** Lisa Stanton; **PRODUCTION SPECIALISTS** Antoinette Hodal, Nichele Johnston, Lori Murphy, Kimberly Oster; **WEB AND NEW MEDIA: SENIOR PROJECT MANAGER** Trista Smith, **PROJECT LEADER** Luke Johnson **COMPUTER SPECIALISTS** Walter Jones, Kai Zhang, **WEB DEVELOPER** Chris Coleman; **PROGRAM DIRECTOR, AAAS MEMBER CENTRAL** Peggy Mihelich

DIRECTOR, GLOBAL COLLABORATION, CUSTOM PUBLICATIONS, ADVERTISING Bill Moran **EDITOR, CUSTOM PUBLISHING** Sean Sanders: 202-326-6430

ASSISTANT EDITOR, CUSTOM PUBLISHING Tianna Hicklin 202-326-6463
SPONSORED CONTENT SPECIALIST Candice Nulsen 202-256-1528

ASSOCIATE DIRECTOR, COLLABORATION, CUSTOM PUBLICATIONS/CHINA/TAIWAN/KOREA/SINGAPORE Ruolei Wu +86-1367-101-5294
PRODUCT (science_advertising@aaas.org); **MIDWEST** Rick Bongiovanni: 330-405-7080, FAX 330-405-7081; **EAST COAST/E. CANADA** Laurie Faraday: 508-747-9395, FAX 617-507-8189; **WEST COAST/W. CANADA** Lynne Stickrod: 415-931-9782, FAX 415-520-6940; **UK/EUROPE/ASIA** Roger Goncalves: TEL/FAX +41 43 243 1358; **JAPAN**, Makiko Hara: +81 (0) 3 6802 4616, FAX +81 (0) 3 6802 4615; ads@sciencemag.jp; **CHINA/TAIWAN** Ruolei Wu: +86 1367 1015 294 ruw@aaas.org

WORLDWIDE ASSOCIATE DIRECTOR OF SCIENCE CAREERS Tracy Holmes: +44 (0) 1223 326525, FAX +44 (0) 1223 326532

CLASSIFIED (advertise@sciencereaders.org); **U.S./CANADA/SOUTH AMERICA** Tina Burks: 202-326-6577; **U.S. CORPORATE** Candice Nulsen 202-256-1528; **SALES ADMINISTRATOR** Marci Gallun; **EUROPE/ROW** Sales Alex Gesatzki, Sarah Lelarge; **SALES ASSISTANT** Kelly Grace; **JAPAN** Yuri Kobayashi +81 (0)90-9110-1719; careerads@sciencemag.jp; **CHINA/TAIWAN** Ruolei Wu: +86 1367 1015 294 ruw@aaas.org; **ADVERTISING SUPPORT MANAGER** Karen Foote: 202-326-6740; **ADVERTISING PRODUCTION OPERATIONS MANAGER** Deborah Tompkins; **SENIOR PRODUCTION SPECIALIST/GRAPHIC DESIGNER** Amy Hardcastle; **PRODUCTION SPECIALIST** Yusei Jajimimuhji; **SENIOR TRAFFIC ASSOCIATE** Christine Hall; **SALES COORDINATOR** Shirley Young; **MARKETING MANAGER** Allison Pritchard; **MARKETING ASSOCIATE** Aimee Aponte

AAAS BOARD OF DIRECTORS RETIRING PRESIDENT, CHAIR William H. Press; PRESIDENT Phillip A. Sharp; PRESIDENT-ELECT Gerald R. Fink; TREASURER David Evans Shaw; CHIEF EXECUTIVE OFFICER Alan I. Leshner; BOARD Bonnie L. Bassler, May R. Berenbaum, Claire M. Fraser, Elizabeth Loftus, Stephen L. Mayo, Raymond Orbach, Sue V. Rosser, Inder M. Verma



ADVANCING THE SCIENCE. SERVING SOCIETY.

SENIOR EDITORIAL BOARD

A. Paul Alivisatos, Lawrence Berkeley Nat'l. Laboratory
Ernst Fehr, Univ. of Zurich
Michael S. Turner, University of Chicago

BOARD OF REVIEWING EDITORS

Adriano Aguzzi, Univ. Hospital Zürich
Takuzo Aida, Univ. of Tokyo
Leslie Aiello, Werner-Gren Foundation
Sonia Altshuler, Univ. of Georgia
Virginia Armbrust, Univ. of Washington
Sebastian Amigorena, Institut Curie
Kathryn Anderson, Memorial Sloan-Kettering Cancer Center
Siv G. E. Andersson, Uppsala Univ.
Peter Andolfatto, Princeton Univ.
Meinrat O. Andreae, Max Planck Inst., Mainz
Paola Arlotta, Harvard Univ.
Johan Auwerx, EPFL
David Auschalom, Univ. of California Santa Barbara
Ben Barres, Stanford Medical School
Jordi Bascompte, Estación Biológica de Doñana, CSIC
Facundo Batista, London Research Inst.
Ray H. Baughman, Univ. of Texas, Dallas
David Baum, Univ. of Wisconsin
Mark Bear, Massachusetts Inst. of Technology
Yasmine Belkaid, NIAID, NIH
Philip Benfey, Duke Univ.
Stephen J. Benkovic, Penn State Univ.
Christopher Bernard, Aix-Marseille Univ.
Gregory C. Berzosa, Stanford Univ.
Gabriele Bergers, Univ. of California, San Francisco
Peer Bork, EMBL
Bernard Bourdon, Ecole Normale Supérieure de Lyon
Chris Bowler, Ecole Normale Supérieure
Ian Boyd, Univ. of St. Andrews
Christian Büchel, Universitätsklinikum Hamburg-Eppendorf
Joseph A. Burns, Cornell Univ.
William P. Butz, Population Reference Bureau
György Buzsáki, New York Univ., School of Medicine
Mats Carlsson, Univ. of Oslo
David Clapham, Children's Hospital, Boston
David Clary, Univ. of Oxford
Jonathan D. Cohen, Princeton Univ.
Robert Cook-Deegan, Duke Univ.
James Collins, Boston Univ.
Alan Cowman, Walter & Eliza Hall Inst.
Robert H. Crabtree, Yale Univ.
Wolfgang Crames, Mediterranean Inst. of Biodiversity and Ecology
Janet Currie, Princeton Univ.
Jeff L. Dangl, Univ. of North Carolina
Tom Daniel, Univ. of Washington
Frans de Waal, Emory Univ.
Stanislas Dehaene, Collège de France
Robert Desimone, MIT

Claude Desplan, North Carolina Univ.
Ap Dijksterhuis, Radboud Univ. of Nijmegen
Dennis Discher, Univ. of Pennsylvania
Gerald W. Dorn II, Washington Univ. School of Medicine
Jennifer A. Doudna, Univ. of California, Berkeley
Christina Eickholt, Fritz-Haber-Institut, Berlin
Christopher Dye, WHO
Todd Ehlers, University of Tuebingen
David Ehrhardt, Carnegie Inst. of Washington
Tim Elston, Univ. of North Carolina at Chapel Hill
Stefan Engel, Fritz-Haber-Institut, Berlin
Barry Everitt, Univ. of Cambridge
Paul G. Falkowski, Rutgers Univ.
Ernst Fehr, Univ. of Zurich
Tom Felchel, Univ. of Copenhagen
Michael Feuer, The George Washington Univ.
Alain Fischer, INSERM
Susan Fiske, Princeton Univ.
Anne C. Ferguson-Smith, Univ. of Cambridge
Peter Fratzl, Max Planck Inst.
Elaine Fuchs, Rockefeller Univ.
Wulfram Gerstner, EPFL Lausanne
Daniel Geschwind, UCLA
Andrew Gewirth, Univ. of Illinois
Karl Heinz Glassmeier, TU Braunschweig
Julia R. Greer, Collected
Elizabeth Grove, Univ. of Chicago
Kip Guy, St. Jude's Children's Research Hospital
Takjip Ha, Univ. of Illinois at Urbana-Champaign
Christian Haass, Ludwig Maximilians Univ.
Steven Hahn, Fred Hutchinson Cancer Research Center
Gregory J. Hannon, Cold Spring Harbor Lab.
Martin Heimann, Max Planck Inst., Jena
Yka Helariutta, Univ. of Finland
Isaac Held, NOAA
James A. Hendler, Rensselaer Polytechnic Inst.
Janet G. Hering, Swiss Fed. Inst. of Aquatic Science & Technology
Ray Hilborn, Univ. of Washington
Michael E. Himmel, National Renewable Energy Lab.
Kai-Uwe Hinrichs, Univ. of Bremen
Kei Hirose, Tokyo Inst. of Technology
David Hodell, Univ. of Cambridge
Johannes Höfer, Imperial College
Lora Hooper, UT Southwestern Medical Ctr at Dallas
Jeffrey A. Hubbell, EPFL Lausanne
Thomas Hudson, Ontario Inst. for Cancer Research
Raymond Huey, Univ. of Washington
Steven Jacobsen, Univ. of California, Los Angeles
Kai Johansson, EPFL Lausanne
Peter Jonas, Inst. of Science & Technology (IST) Austria
Mat Kaebertine, Univ. of Washington
William Kaelin Jr., Dana-Farber Cancer Inst.
Daniel Kahn, Harvard Univ.
Daniel Kammen, Univ. of California, Berkeley

Joel Kingsolver, Univ. of North Carolina at Chapel Hill
Robert Kingston, Harvard Medical School
Roberto Kolter, Harvard Medical School
Alberto R. Kornblihtt, Univ. of Buenos Aires
Leonid Kruglyak, Princeton Univ.
Thomas Langer, Univ. of Cologne
Mitchell A. Lazar, Univ. of Pennsylvania
David Lazer, Harvard Univ.
Virginia Lee, Univ. of Pennsylvania
Stanley Lemon, Univ. of North Carolina at Chapel Hill
Ottoline Leyser, Cambridge Univ.
Marcia C. Linn, Univ. of California, Berkeley
Jiangju Liu, Michigan State Univ.
Luis Liz-Marzan, CIC bioGUNE
Jonathan Losos, Harvard Univ.
Ke Lu, Chinese Acad. of Sciences
Christian Lüscher, Univ. of Geneva
Laura Machesky, CRUK Beatson Inst. for Cancer Research
Anne Magurran, Univ. of St. Andrews
Oscar Marin, CSIC & Univ. Miguel Hernández
Charles Marshall, Univ. of California, Berkeley
Chris Marshall, Inst. of Cancer Research
Martin M. Matzuk, Baylor College of Medicine
C. Robertson McClung, Dartmouth College
Graham Medley, Univ. of Warwick
Timothy W. Miller, The Hastings Center
Richard Morris, Univ. of Edinburgh
Edward Moser, Norwegian Univ. of Science and Technology
Sean Murray, MRC Lab. of Molecular Biology
Thomas Murray, The Hastings Center
Naoto Nagaosa, Univ. of Tokyo
James Nelson, Stanford Univ. School of Med.
Daniel Neumark, Univ. of California, Berkeley
Stuart Newman, New York Medical College
Timothy W. Nilsen, Case Western Reserve Univ.
Pär Nordlund, Karolinska Inst.
Helga Nowotny, European Research Advisory Board
Luke O'Neill, Trinity College, Dublin
B. Oelken, MIT
Michael J. O'Connell, Princeton Univ.
Joe Orenstein, Univ. of California, Berkeley & Lawrence Berkeley National Lab
Harry Orr, Univ. of Minnesota
Andrew Oswald, Univ. of Warwick
Steve Palumbi, Stanford Univ.
David R. Paul, Univ. of Texas at Austin
Donald Pearson, Univ. of California, Berkeley
Timothy W. Pennell, Memorial Sloan-Kettering Cancer Center
Simon Phillipot, Univ. of Florida
Joshua Plotkin, Univ. of Pennsylvania
Philippe Poulin, CNRS
Colin Renfrew, Univ. of Cambridge
Trevor Robbins, Univ. of Cambridge
Jim Roberts, Fred Hutchinson Cancer Research Ctr.