

Editor-in-Chief Marcia McNutt

Executive Editor Monica M. Bradford **News Editor** Tim Appenzeller

Managing Editor, Research Journals Katrina L. Kelner

Deputy Editors Barbara R. Jasny, Andrew M. Sugden(UK), Valda J. Vinson, Jake S. Yeston

Research and Insights

SR. EDITORS Caroline Ash(UK), Gilbert J. Chin, Lisa D. Chong, Julia Fahrenkamp-Uppenbrink(UK), Pamela J. Hines, Stella M. Hurlley(UK), Paula A. Kiberstis, Marc S. Lavine(Canada), Kristen L. Mueller, Ian S. Osborne(UK), Beverly A. Purnell, L. Bryan Ray, Guy Riddihough, H. Jesse Smith, Jelena Stajic, Peter Stern(UK), Phillip D. Szuromi, Brad Wible, Nicholas S. Wigginton, Laura M. Zahn **ASSOCIATE EDITORS** Brent Grocholski, Keith T. Smith, Sacha Vignieri **ASSOCIATE BOOK REVIEW EDITOR** Valerie B. Thompson **ASSOCIATE LETTERS EDITOR** Jennifer Sills **CHIEF CONTENT PRODUCTION EDITOR** Cara Tate **SR. CONTENT PRODUCTION EDITOR** Harry Jack, Lauren Kmec **CONTENT PRODUCTION EDITORS** Jeffrey E. Cook, Chris Filiatreau, Cynthia Howe, Barbara P. Ordway, Catherine Wolner **SR. 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 Mayne Flood, Shannon McMahon, Scott Miller, Jerry Richardson, Rachel Roberts(UK), Alice Whaley(UK), Brian White **EXECUTIVE ASSISTANT** Anna Bashkirova **ADMINISTRATIVE SUPPORT** Janet Clements(UK), Lizanne Newton(UK), Maryrose Madrid, Laura-Nadine Schuhmacher (UK, Intern), Alix Welch (Intern), John Wood(UK)

News

NEWS MANAGING EDITOR John Travis **INTERNATIONAL EDITOR** Richard Stone **DEPUTY NEWS EDITORS** Daniel Clery(UK), Robert Coontz, Elizabeth Culotta, David Grimm, David Malakoff, Leslie Roberts **CONTRIBUTING EDITOR** Martin Enserink(Europe) **SR. CORRESPONDENTS** Jeffrey Mervis, Elizabeth Pennisi **NEWS WRITERS** Adrian Cho, Jon Cohen, Jennifer Couzin-Frankel, Carolyn Gramling, Eric Hand, Jocelyn Kaiser, Catherine Matacic, Kelly Servick, Robert F. Service, Erik Stokstad(Cambridge, UK), Emily Underwood **INTERNS** Hanae Armitage, Emily DeMarco, Annick Laurent, Lara Olivieri, Juan David Romero **CONTRIBUTING CORRESPONDENTS** Michael Balter(Paris), John Bonanno, Ann Gibbons, Mara Hvistendahl, Sam Kean, Eli Kintisch, Kai Kupferschmidt(Berlin), Andrew Lawler, Christina Larson(Beijing), Mitch Leslie, Charles C. Mann, Eliot Marshall, Virginia Morell, Dennis Normile(Tokyo), Heather Pringle, Tania Rabesandratana(London), Gretchen Vogel(Berlin), Lizzie Wade(Mexico City) **CAREERS** Donisha Adams, Rachel Bernstein **COPY EDITORS** Julia Cole, Jennifer Levin (Chief) **ADMINISTRATIVE SUPPORT** Jessica Williams

Executive Publisher Rush D. Holt

Publisher Kent R. Anderson **Chief Digital Media Officer** Rob Covey

BUSINESS OPERATIONS AND PORTFOLIO MANAGEMENT DIRECTOR Sarah Whalen **BUSINESS SYSTEMS AND FINANCIAL ANALYSIS DIRECTOR** Randy Yi **MANAGER OF FULFILLMENT SYSTEMS** Neal Hawkins **SYSTEMS ANALYST** Nicole Mehmedovic **ASSISTANT DIRECTOR, BUSINESS OPERATIONS** Eric Knott **MANAGER, BUSINESS OPERATIONS** Jessica Tierney **BUSINESS ANALYSTS** Cory Lipman, Cooper Tilton, Celeste Troler **FINANCIAL ANALYST** Robert Clark **RIGHTS AND PERMISSIONS ASSISTANT DIRECTOR** Emilie David **PERMISSIONS ASSOCIATE** Elizabeth Sandler **RIGHTS, CONTRACTS, AND LICENSING ASSOCIATE** Lili Kiser

MARKETING DIRECTOR Elise Swinehart **ASSOCIATE DIRECTOR OF ACQUISITION AND RETENTION** Julianne Wielga **MARKETING ASSOCIATE** Elizabeth Sattler **SR. MARKETING EXECUTIVE** Jennifer Reeves **ASSOCIATE DIRECTOR, CREATIVE SERVICES** Tzeitel Sorrosa **ART ASSOCIATE** Seil Lee **JR. ART ASSOCIATE** Kim Huynh **ASSISTANT COMMERCIAL EDITOR** Selby Frame **MARKETING PROJECT MANAGER** Angelissa McArthur **PROGRAM DIRECTOR, AAAS MEMBER CENTRAL** Peggy Mihelich **FULFILLMENT SYSTEMS AND OPERATIONS** membership@aaas.org **MANAGER, MEMBER SERVICES** Pat Butler **SPECIALISTS** LaToya Casteel, Terrance Morrison, Latasha Russell **MANAGER, DATA ENTRY** Mickie Napoleoni **DATA ENTRY SPECIALISTS** JJ Regan, Brenden Aquilino, Fiona Giblin

DIRECTOR, SITE LICENSING Tom Ryan **DIRECTOR, CORPORATE RELATIONS** Eileen Bernadette Moran **SR. PUBLISHER RELATIONS SPECIALIST** Kiki Forsyth **PUBLISHER RELATIONS MANAGER** Catherine Holland **PUBLISHER RELATIONS, EASTERN REGION** Keith Layson **PUBLISHER RELATIONS, WESTERN REGION** Ryan Rexroth **SALES RESEARCH COORDINATOR** Aiesha Marshall **MANAGER, SITE LICENSE OPERATIONS** Iqoo Edim **SENIOR PRODUCTION SPECIALIST** Robert Koepke **SENIOR OPERATIONS ANALYST** Lana Guo **FULFILLMENT ANALYST** Judy Lillibrige **ASSOCIATE DIRECTOR, MARKETING** Christina Schlecht **MARKETING ASSOCIATES** Thomas Landreth, Isa Sesay-Bah

WEB TECHNOLOGIES SR. DEVELOPER Chris Coleman **DEVELOPERS** Dan Berger, Jimmy Marks, Ryan Jensen **SR. PROJECT MANAGER** Trista Smith

MULTIMEDIA DIRECTOR OF ANALYTICS Enrique Gonzales **SR. WEB PRODUCER** Sarah Crespi **WEB PRODUCER** Alison Crawford **VIDEO PRODUCER** Nguyen Nguyen **SPECIAL MEDIA PRODUCER** Meghna Sachdev

DIRECTOR OF OPERATIONS PRINT AND ONLINE Elizabeth Harman **DIGITAL/PRINT STRATEGY MANAGER** Jason Hillman **QUALITY TECHNICAL MANAGER** Marcus Spiegler **PROJECT ACCOUNT MANAGER** Tara Kelly **DIGITAL PRODUCTION MANAGER** Lisa Stanford **ASSISTANT MANAGER DIGITAL/PRINT** Rebecca Doshi **SENIOR CONTENT SPECIALISTS** Steve Forrester, Antoinette Hodal, Lori Murphy, Anthony Rosen **CONTENT SPECIALISTS** Jacob Hedrick, Kimberley Oster

DESIGN DIRECTOR Beth Rakouskas **DESIGN EDITOR** Marcy Atarod **SENIOR DESIGNER** Garvin Grullón **DESIGNER** Chrystal Smith **GRAPHICS MANAGING EDITOR** Alberto Cuadra **SENIOR SCIENTIFIC ILLUSTRATORS** Chris Bickel, Katharine Sutliff **SCIENTIFIC ILLUSTRATOR** Valerie Altounian **SENIOR ART ASSOCIATES** Healy Bishop, Nathalie Cary, Preston Huey **SENIOR PHOTO EDITOR** William Douthitt **PHOTO EDITORS** Leslie Blizard, Christy Steele

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 **ADVERTISING MARKETING MANAGER** Justin Sawyers: 202-326-7061 **science_advertising@aaas.org** **ADVERTISING MARKETING ASSOCIATE** Javia Flemmings **ADVERTISING SUPPORT MANAGER** Karen Fote: 202-326-6740 **ADVERTISING PRODUCTION OPERATIONS MANAGER** Deborah Tompkins **SR. PRODUCTION SPECIALIST/GRAPHIC DESIGNER** Amy Hardcastle **PRODUCTION SPECIALIST** Yuse Lajjiminuhip **SR. TRAFFIC ASSOCIATE** Christine Hall **SALES COORDINATOR** Shirley Young **ASSOCIATE DIRECTOR, COLLABORATION, CUSTOM PUBLICATIONS/CHINA/TAIWAN/KOREA/SINGAPORE** Ruolei Wu: +86-186 0082 9345, rwu@aaas.org **COLLABORATION, CUSTOM PUBLICATIONS/JAPAN** Adarsh Sandhu + 81532-81-5142 asandhu@aaas.org **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 **MIDWEST** Jeffrey Dembski: 847-498-4520 x3005, Steven Loerch: 847-498-4520 x3006 **UK EUROPE/ASIA** Roger Goncalves: TEL/FAX +41 43 243 1358 **JAPAN** Katsuyoshi Fukamizu(Tokyo): +81-3-3219-5777 kfukamizu@aaas.org **CHINA/TAIWAN** Ruolei Wu: +86-186 0082 9345, rwu@aaas.org

WORLDWIDE ASSOCIATE DIRECTOR OF SCIENCE CAREERS Tracy Holmes: +44 (0) 1223 326525, FAX +44 (0) 1223 326532 tholmes@science-int.co.uk **CLASSIFIED** advertise@sciencecareers.org **U.S. SALES** Tina Burks: 202-326-6577 **Nancy Toema**: 202-326-6578 **ADMINISTRATOR** Marci Gannon **EUROPE/ROW SALES** Axel Gesatzki, Sarah Lelarge **SALES ASSISTANT** Kelly Grace **JAPAN** Hiroyuki Mashiki(Kyoto): +81-75-823-1109 hmashiki@aaas.org **CHINA/TAIWAN** Ruolei Wu: +86-186 0082 9345 rwu@aaas.org **MARKETING MANAGER** Allison Pritchard **MARKETING ASSOCIATE** Aimee Aponte

AAAS BOARD OF DIRECTORS **RETIRING PRESIDENT, CHAIR** Gerald R. Fink **PRESIDENT** Geraldine (Geri) Richmond **PRESIDENT-ELECT** Barbara A. Schaaf **TREASURER** David Evans **SHAW CHIEF EXECUTIVE OFFICER** Rush D. Holt **BOARD** Bonnie L. Bassler, May R. Berenbaum, Carlos J. Bustamante, Stephen P. A. Fodor, Claire M. Fraser, Michael S. Gazzaniga, Laura H. Greene, Elizabeth Loftus, Mercedes Pascual **SUBSCRIPTION SERVICES** For change of address, missing issues, new orders and renewals, and payment questions: 866-434-AAAS (2227) 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 202-326-6730 **REPRINTS:** Author Inquiries 800-635-7181 **COMMERCIAL INQUIRIES** 803-359-4578 **PERMISSIONS** 202-326-6765, permissions@aaas.org **AAAS Member Services** 202-326-6417 or http://membercentral.aaas.org/discovers

Science serves as a forum for discussion of important issues related to the advancement of science by publishing material on which a consensus has been reached as well as including the presentation of minority or conflicting points of view. Accordingly, all articles published in Science—including editorials, news and comment, and books 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.

INFORMATION FOR AUTHORS See pages 678 and 679 of the 6 February 2015 issue or access www.sciencemag.org/about/authors

SENIOR EDITORIAL BOARD

Robert H. Grubbs, *California Institute of Technology*, Gary King, *Harvard University*
Susan M. Rosenberg, *Baylor College of Medicine*, Ali Shihata, *Northwestern University*
Feinberg School of Medicine, Michael S. Turner, *U. of Chicago*

BOARD OF REVIEWING EDITORS (Statistics board members indicated with S)

Adriano Aguzzi, *U. Hospital Zürich*
Takuzo Aida, *U. of Tokyo*
Leslie Aiello, *Wenner-Gren Foundation*
Judith Allen, *U. of Edinburgh*
Sonia Altizer, *U. of Georgia*
Sebastian Amigorena, *Institut Curie*
Kathryn Anderson, *Memorial Sloan-Kettering Cancer Center*
Meinrat O. Andreae, *Max-Planck Inst. Mainz*
Paola Arlotta, *Harvard U.*
Johan Auwerx, *EPFL*
David Awschalom, *U. of Chicago*
Clare Baker, *University of Cambridge*
Jordi Bascompte, *University of Zurich*
Facundo Batista, *London Research Inst.*
Ray H. Baughman, *U. of Texas, Dallas*
David Baum, *U. of Wisconsin*
Carlo Beenakker, *Leiden U.*
Kamran Behnia, *ESPCI-ParisTech*
Yasmine Belkaid, *NIH, NIH*
Philip Benfey, *Duke U.*
Stephen J. Benkovic, *Penn State U.*
May Berenbaum, *U. of Illinois*
Gabriele Bergers, *U. of California, San Francisco*
Bradley Bernstein, *Massachusetts General Hospital*
Peer Bork, *EMBL*
Bernard Bourdon, *École Normale Supérieure de Lyon*
Chris Bowler, *École Normale Supérieure*
Ian Boyd, *U. of St. Andrews*
Emily Brodsky, *U. of California, Santa Cruz*
Ron Brookmeyer, *U. of California Los Angeles (S)*
Christian Büchel, *Hamburg-Eppendorf*
Joseph A. Burns, *Cornell U.*
Carter Tribley Butts, *U. of California, Irvine*
Gyorgy Buzsáki, *New York U. School of Medicine*
Blanche Capel, *Duke U.*
Mats Carlsson, *U. of Oslo*
Ib Chorkendorff, *U. of Denmark*
David Clapham, *Children's Hospital Boston*
David Clary, *U. of Oxford*
Joel Cohen, *Rockefeller U., Columbia U.*
James J. Collins, *MIT*
Robert Cook-Deegan, *Duke U.*
Alan Cowman, *Walter & Eliza Hall Inst.*
Robert H. Crabtree, *Yale U.*
Roberta Croce, *Vrije Universiteit*
Janet Currie, *Princeton U.*
Jeff L. Dangl, *U. of North Carolina*
Tom Daniel, *U. of Washington*
Frans de Waal, *Emory U.*
Stanislas Dehaene, *Collège de France*
Robert Desimone, *MIT*
Claude Desplan, *New York U.*
Ap Dijksterhuis, *Radboud U. of Nijmegen*
Dennis Discher, *U. of Pennsylvania*
Gerald W. Dorn II, *Washington U. School of Medicine*
Jennifer A. Doudna, *U. of California, Berkeley*
Bruce Dunn, *U. of California, Los Angeles*
William Dunphy, *Caltch*
Christopher Dye, *WHO*
Todd Ehlers, *U. of London*
David Ehrhardt, *Carnegie Inst. of Washington*
Tim Elston, *U. of North Carolina at Chapel Hill*
Gerhard Ertl, *Fritz-Haber-Institut, Berlin*
Barry Everitt, *U. of Cambridge*
Ernst Fehr, *U. of Zurich*
Anne C. Ferguson-Smith, *U. of Cambridge*
Michael Feuer, *The George Washington U.*
Toren Finkel, *NHLBI, NIH*
Kate Fitzgerald, *U. of Massachusetts*
Peter Fratzl, *Max-Planck Inst.*
Elaine Fuchs, *Rockefeller U.*
Daniel Geschwind, *UCI*
Karl-Heinz Glassmeier, *TU Braunschweig*
Ramon Gonzalez, *Rice U.*
Julia R. Greer, *Caltch*
Elizabeth Grove, *U. of Chicago*
Nicolas Gruber, *ETH Zurich*
Kip Guy, *St. Jude's Children's Research Hospital*
Taekjip Ha, *U. of Illinois at Urbana-Champaign*
Christian Hassel, *Ludwig Maximilians U.*
Michael Hasselmo, *Boston U.*
Martin Heimann, *Max-Planck Inst. Jena*
Yka Helariutta, *U. of Cambridge*
James A. Hendler, *Rensselaer Polytechnic Inst.*
Janet G. Hering, *Swiss Fed. Inst. of Aquatic Science & Technology*
Kai-Uwe Hinrichs, *U. of Bremen*
Kei Hirose, *Tokyo Inst. of Technology*
David Hodell, *U. of Cambridge*
David Holden, *Imperial College*
Lora Hooper, *UT Southwestern Medical Ctr. at Dallas*
Raymond Huey, *U. of Washington*
Auke Ijspeert, *EPFL Lausanne*
Steven Jacobsen, *U. of California, Los Angeles*
Kai Jonsson, *EPFL Lausanne*
Peter Jonas, *Inst. of Science & Technology (IST) Austria*
Matt Kaeberlein, *U. of Washington*
William Kaelin Jr., *Dana-Farber Cancer Inst.*
Daniel Kahne, *Harvard U.*
Daniel Kammen, *U. of California, Berkeley*
Masashi Kawasaki, *U. of Tokyo*
Y. Narry Kim, *Seoul National U.*
Joel Kingsolver, *U. of North Carolina at Chapel Hill*
Robert Kingston, *Harvard Medical School*
Etienne Kochkin, *École Normale Supérieure*

Alexander Kolodkin, *Johns Hopkins U.*
Leonid Kruglyak, *UCI*
Thomas Langer, *U. of Cologne*
Mitchell A. Lazar, *U. of Pennsylvania*
David Lazer, *Harvard U.*
Thomas Lecuit, *IBDM*
Virginia Lee, *U. of Pennsylvania*
Stanley Lemon, *U. of North Carolina at Chapel Hill*
Ottoline Leyser, *Cambridge U.*
Wendell Lim, *U.C. San Francisco*
Marcia C. Linn, *U. of California, Berkeley*
Jianguo Liu, *Michigan State U.*
Luis Liz-Marzan, *CIC biomarGUNE*
Jonathan Losos, *Harvard U.*
Ke Lu, *Chinese Acad. of Sciences*
Christian Lüscher, *U. of Geneva*
Laura Machesky, *CRUK Bealson Inst. for Cancer Research*
Anne Magrath, *U. of St. Andrews*
Oscar Marin, *CSIC & U. Miguel Hernández*
Charles Marshall, *U. of California, Berkeley*
C. Robertson McClung, *Dartmouth College*
Graham Medley, *U. of Warwick*
Tom Misteli, *NCI*
Yasushi Miyashita, *U. of Tokyo*
Mary Ann Moran, *U. of Georgia*
Richard Morris, *U. of Edinburgh*
Alison Murray-Reif, *NC State U. (S)*
Thomas Murray, *The Hastings Center*
James Neuman, *Stanford U. School of Med.*
Daniel Nelso, *U. of California, Berkeley*
Kitty Nijmeijer, *U. of Twente*
Pär Nordlund, *Karolinska Inst.*
Heiga Nowotny, *European Research Advisory Board*
Ben Olken, *MIT*
Joe Orenstein, *U. of California Berkeley & Lawrence Berkeley National Lab*
Andrew Oswald, *U. of Warwick*
Steve Palumbi, *Stanford U.*
Jane Parker, *Max-Planck Inst. of Plant Breeding Research*
Giovanni Parmigiani, *Dana-Farber Cancer Inst. (S)*
Donald R. Paul, *U. of Texas, Austin*
John H. J. Petri, *Memorial Sloan-Kettering Cancer Center*
Samuel Pfaff, *Salk Institute for Biological Studies*
Joshua Plotkin, *U. of Pennsylvania*
Albert Polman, *FOM Institute AMOLF*
Philippe Pouch, *CNRS*
Jonathan Pritchard, *Stanford U.*
David Randall, *Colorado State U.*
Colin Renfrew, *U. of Cambridge*
Felix Rey, *Institut Pasteur*
Trevor Robbins, *U. of Cambridge*
Jim Roberts, *Fred Hutchinson Cancer Research Ctr.*
Barbara A. Romanowicz, *U. of California, Berkeley*
Amy Rosenzweig, *Northwestern University*
Jens Rostrup-Nielsen, *Haldor Topsøe*
Mike Ryan, *U. of Texas, Austin*
Mitsuru Saitou, *Kyoto U.*
Shimon Sakaguchi, *Hyogo U.*
Miguel Salmeron, *Lawrence Berkeley National Lab*
Jürgen Sandkühner, *Medical U. of Vienna*
Alexander Schier, *Harvard U.*
Randy Seeley, *U. of Cincinnati*
Vladimir Shalvaev, *Purdue U.*
Robert Siliciano, *Johns Hopkins School of Medicine*
Denis Simon, *Arizona State U.*
Uri Simonson, *U. of Pennsylvania*
Alison Smith, *John Innes Centre*
Richard Smith, *U. of North Carolina (S)*
John Speakman, *U. of Aberdeen*
Allan C. Spradling, *Carnegie Institution of Washington*
Jonathan Sprent, *Garvan Inst. of Medical Research*
Eric Steig, *U. of Washington*
Paula Stephan, *George State U. and National Bureau of Economic Research*
Molly Stevens, *Imperial College London*
V. S. Subrahmanian, *U. of Maryland*
Ira Tabas, *Columbia U.*
Sarah Teichmann, *Cambridge U.*
John Thomas, *North Carolina State U.*
Shubha Tole, *Tata Institute of Fundamental Research*
Christopher Tyler-Smith, *The Wellcome Trust Sanger Inst.*
Herbert Virgin, *Washington U.*
Bert Vogelstein, *Johns Hopkins U.*
Daniel Vogelstein, *U. of Göttingen*
Douglas Wallace, *Dalhousie U.*
David Wallace, *Weizmann Inst. of Science*
Ian Walmsey, *U. of Oxford*
Jane-Ling Wang, *U. of California, Davis*
David A. Wardle, *Swedish U. of Agric. Sciences*
David Waxman, *Fudan U.*
Jonathan Weissman, *U. of California, San Francisco*
Chris Wikle, *U. of Missouri (S)*
Ian A. Wilson, *The Scripps Res. Inst. (S)*
Timothy D. Wilson, *U. of Virginia*
Rosemary Wyse, *Johns Hopkins U.*
Jan Zaenen, *Leiden U.*
Kenneth Zaret, *U. of Pennsylvania School of Medicine*
Jonathan Zehr, *U. of California, Santa Cruz*
Len Zon, *Children's Hospital Boston*
Maria Zuber, *MIT*

BOOK REVIEW BOARD

David Bloom, *Harvard U.* Samuel Bowring, *MIT*, Angela Creager, *Princeton U.*, Richard Sweder, *U. of Chicago*, Ed Wasserman, *DuPont*