

EDITORIAL

- 660 On Effective Leadership
Bruce Alberts

NEWS OF THE WEEK

- 664 A roundup of the week's top stories

NEWS & ANALYSIS

- 667 More Woes for Struggling HIV Vaccine Field
- 668 Planetary Scientists Casting Doubt on Feasibility of Plan to Corral Asteroid
>> *Science Podcast*
- 670 Proposed Change in Awarding Grants at NSF Spurs Partisan Sniping
- 671 Boston Bombing Victims Aided by Biologist-Surgeon
>> *Science Careers*
- 673 Amid Heightened Concerns, New Name for Novel Coronavirus Emerges

NEWS FOCUS

- 674 Pesticides Under Fire for Risks to Pollinators
How Big a Role Should Neonicotinoids Play in Food Security?
- 677 China Heads Off Deadly Blood Disorder
- 678 Insistence on Gathering Real Data Confirms Low Radiation Exposures

LETTERS

- 680 No Excuse for Habitat Destruction
D. B. Lindenmayer and H. P. Possingham
Unpalatable Politics
R. K. Wilson
Don't Cull Wild Birds Yet
D. L. Yong et al.
- 681 NextGenVOICES
- 682 TECHNICAL COMMENT ABSTRACTS

BOOKS ET AL.

- 683 On Rivers, Flowers, Fruits, and More

POLICY FORUM

- 687 The NIH BRAIN Initiative
T. R. Insel et al.

PERSPECTIVES

- 689 Simple Genetics for a Complex Disease
J. C. Cohen and H. H. Hobbs
- 690 Feathers Before Flight
J. Clarke
- 692 Crowdsourcing Immunity
J. E. Crowe Jr.
>> *Report p. 751*
- 693 A Fresh Start for Foam Physics
D. Weaire
>> *Report p. 720*
- 694 Controlling Atomic Line Shapes
C. D. Lin and W.-C. Chu
>> *Report p. 716*
- 695 Why Adults Need New Brain Cells
O. Bergmann and J. Frisén
>> *Report p. 756*

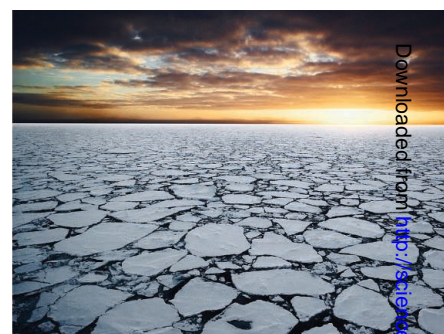
REVIEWS

- 697 Bacterial Subversion of Host Innate Immune Pathways
L. A. Baxt et al.
- 701 Cellular Self-Defense: How Cell-Autonomous Immunity Protects Against Pathogens
F. Randow et al.

CONTENTS continued >>



page 674



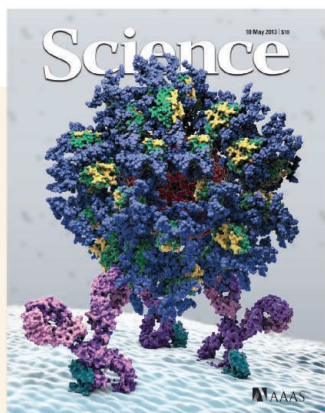
page 683

Downloaded from <http://science.sciencemag.org/> on January 22, 2018

ON THE WEB THIS WEEK

>> **Science Express**
Read articles on the formation of cirrus clouds, the evolution of Arctic polar climate, and the common origin of water on Earth and the Moon.

>> **Find More Online**
Check out *Science Express*, our podcast, videos, daily news, our research journals, and *Science Careers* at www.sciencemag.org.



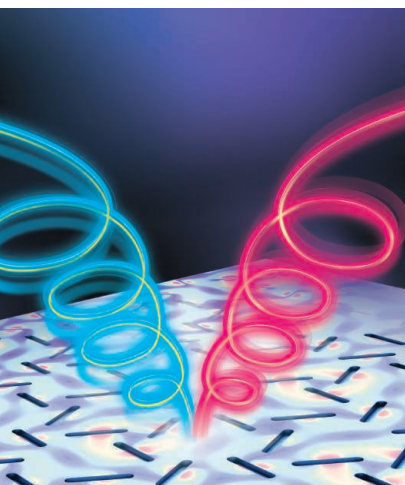
COVER

Model of a candidate HIV vaccine prime immunogen (center) engaging germline B cell receptors (bottom) to initiate an antibody immune response. The immunogen is a virus-like nanoparticle, ~30 nanometers in diameter, displaying 60 copies of an HIV gp120 outer domain protein engineered to bind germline precursors of specific broadly neutralizing antibodies. This work has promising implications for HIV vaccine research. See page 711.

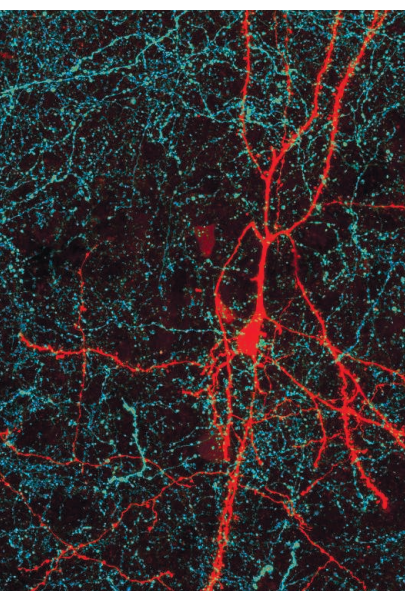
Image: Christina Corbaci, Adam Gardner, Joe Jardine, Sergey Menis, and William Schief, The Scripps Research Institute

DEPARTMENTS

- 659 This Week in *Science*
661 Editors' Choice
663 Science Staff
766 New Products
767 Science Careers



page 724



page 759

RESEARCH ARTICLES

- 707 **Morals and Markets**
A. Falk and N. Szech
Marketplace interactions affect how much people are willing to pay to prolong the life of a mouse.
>> *Science Podcast*
- 711 **Rational HIV Immunogen Design to Target Specific Germline B Cell Receptors**
J. Jardine et al.
Structural knowledge of broadly neutralizing antibodies against HIV-1 guides the design of an immunogen to elicit them.

REPORTS

- 716 **Lorentz Meets Fano in Spectral Line Shapes: A Universal Phase and Its Laser Control**
C. Ott et al.
An analytical framework bolstered by attosecond spectroscopy conveys a clear understanding of asymmetric spectral line shapes.
>> *Perspective p. 694*
- 720 **Multiscale Modeling of Membrane Rearrangement, Drainage, and Rupture in Evolving Foams**
R. I. Saye and J. A. Sethian
A model is developed to describe the complex dynamics of dry foams across a range of time and length scales.
>> *Perspective p. 693*
- 724 **Spin-Optical Metamaterial Route to Spin-Controlled Photonics**
N. Shitrit et al.
Designed arrays of metallic nanoantennas provide a route for the polarization-dependent propagation of light.
- 727 **Enhanced Role of Transition Metal Ion Catalysis During In-Cloud Oxidation of SO₂**
E. Harris et al.
Transition metal ions catalyze most of the oxidation of sulfur dioxide that occurs in clouds.
- 730 **Networks of bZIP Protein-Protein Interactions Diversified Over a Billion Years of Evolution**
A. W. Reinke et al.
A comparative study of a dimeric transcription factor family looks at the evolution of protein interactions.

- 734 **Observing Atomic Collapse Resonances in Artificial Nuclei on Graphene**
Y. Wang et al.
The massless charge carriers in graphene interact with highly charged defects to create an analog of atomic collapse states.
- 737 **Robust Circadian Oscillations in Growing Cyanobacteria Require Transcriptional Feedback**
S.-W. Teng et al.
The cyanobacterial clock uses one circuit for rhythms and a second circuit for intercellular synchronous oscillations.
- 741 **Global Leaf Trait Relationships: Mass, Area, and the Leaf Economics Spectrum**
J. L. D. Osnas et al.
Leaf traits are distributed in proportion to area; relationships between leaf traits are independent of leaf mass and area.
- 744 **Early Mesodermal Cues Assign Avian Cardiac Pacemaker Fate Potential in a Tertiary Heart Field**
M. Bressan et al.
A region of the lateral plate mesoderm gives rise to the cardiac pacemaker cell lineage prior to the onset of heart formation.
- 748 **Wolbachia Invades Anopheles stephensi Populations and Induces Refractoriness to Plasmodium Infection**
G. Bian et al.
Stable inheritance of a symbiotic bacterium suppresses malaria parasites in mosquitoes.
- 751 **Delineating Antibody Recognition in Polyclonal Sera from Patterns of HIV-1 Isolate Neutralization**
I. S. Georgiev et al.
An algorithm predicts the neutralization specificity of sera from HIV-infected individuals.
>> *Perspective p. 692*
- 756 **Emergence of Individuality in Genetically Identical Mice**
J. Freund et al.
Over time, the brains and behaviors of inbred mice diversify.
>> *Perspective p. 695*
- 759 **Compartmentalization of GABAergic Inhibition by Dendritic Spines**
C. Q. Chiu et al.
Inhibitory synapses can control individual dendritic spines independently from their neighbors.

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 © 2013 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): \$149 (\$74 allocated to subscription). Domestic institutional subscription (51 issues): \$990; 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 #1254 88122. Publications Mail Agreement Number 1069624. 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.

Downloaded from <http://science.sciencemag.org/> on January 22, 2018

CREDIT: (TOP) HASMAN'S GROUP; (BOTTOM) GYORGY LUR, CHAYU CHIU, MICHAEL HIGLEY

Science

340 (6133)

Science **340** (6133), 659-766.

ARTICLE TOOLS

<http://science.sciencemag.org/content/340/6133>

PERMISSIONS

<http://www.sciencemag.org/help/reprints-and-permissions>

Use of this article is subject to the [Terms of Service](#)

Science (print ISSN 0036-8075; online ISSN 1095-9203) is published by the American Association for the Advancement of Science, 1200 New York Avenue NW, Washington, DC 20005. 2017 © The Authors, some rights reserved; exclusive licensee American Association for the Advancement of Science. No claim to original U.S. Government Works. The title *Science* is a registered trademark of AAAS.