False-colored atomic force micrograph of two types of molecules forming a mixed self-assembled monolayer on a gold surface. The two molecules differ in height by 0.2 nanometers, giving the appearance of ripples. This image was awarded first place in the photography category in the 2010 Science/NSF International Science & Engineering Visualization Challenge. The winning entries are featured in a special section starting on page 847 and at www.sciencemag.org/special/vis2010/.

Image: Seth B. Darling, Argonne National Laboratory; and Steven J. Sibener, University of Chicago
ESSAYS
872 Genome-Sequencing Anniversary: A Celebration of the Genome, Part III
A Living Constitution
S. Jasanoff
What Does a "Normal" Human Genome Look Like?
M. V. Olson
Of Mice and Humans
S. Yamanaka
Human Genome Sequencing: Celebrating 10 Years
L. Al-Gazali
Gene Patents: The Shadow of Uncertainty
R. Cook-Deegan
The Genomic Foundation Is Shifting
J. S. Mattick
Famine in the Presence of the Genomic Data Feast
E. Hoal
>> News & Analysis p. 838; Policy Forum p. 861

BREVIA
876 Synthetic Clonal Reproduction Through Seeds
M. P. A. Marinathu et al.
Clonal reproduction is engineered in a sexual plant by manipulating conserved genes controlling meiosis.

RESEARCH ARTICLES
877 Extended Nucleation of the 1999 Mw 7.6 Izmit Earthquake
M. Bouchon et al.
Low-frequency seismic events may have been part of slip accumulation before a large earthquake.
>> News & Analysis p. 836
881 The Crystal Structure of the Signal Recognition Particle in Complex with Its Receptor
S. F. Ataide et al.
Guanine triphosphate controls changes in the signal recognition particle that facilitate transfer of the signal sequence to the translocon.
882 Quantum Reflection of He2 Several Nanometers Above a Grating Surface
B. S. Zhao et al.
The helium molecule can interact at large distances with the evanescent repulsion potential of the surface.
892 Spin Selectivity in Electron Transmission Through Self-Assembled Monolayers of Double-Stranded DNA
B. Göhler et al.
Photoelectrons emitted from a DNA-covered gold surface can have an unbalanced spin population of up to 60%.
>> Perspective p. 864
894 Capillary Forces in Suspension Rheology
E. Koos and N. Willenbacher
The addition of a small amount of a nonwetting immiscible fluid to a suspension can drastically alter its rheological properties.
>> Perspective p. 868
897 Steric Control of the Reaction of CH Stretch–Excited CH2 with Chlorine Atom
F. Wang et al.
Spectroscopy elucidates the complex interplay between orientational and vibrational effects in a simple chemical reaction.
900 The Magnitude and Duration of Late Ordovician–Early Silurian Glaciation
S. Finnegan et al.
Carbonate isotopes reveal a link between past ocean temperatures and mass extinction.
903 Hibernation in Black Bears: Independence of Metabolic Suppression from Body Temperature
Ø. Tøien et al.
Hibernating black bears suppress their metabolic rate to 25% of normal, but only slightly reduce their body temperature.
>> Perspective p. 866
906 The Antiproliferative Action of LysM-Type Mycorrhizal Receptor Recruited for Rhizobium Symbiosis in Nonlegume Parasponia
R. Op den Camp et al.
Parasponia uses a mycorrhizal signaling receptor essential for arbuscle formation to control rhizobium nodule symbiosis.
>> Perspective p. 865
909 Distinct Properties of the XY Pseudoautosomal Region Crucial for Male Meiosis
L. Kauppi et al.
Recombination between the sex chromosomes during sperm formation is controlled by a splicing isoform of the SPO11 protein.
>> Perspective p. 870
912 Classic Selective Sweeps Were Rare in Recent Human Evolution
R. D. Hernandez et al.
Much human genetic variation is likely due to purifying selection against deleterious mutations.
916 Microtubule Stabilization Reduces Scarring and Causes Axon Regeneration After Spinal Cord Injury
F. Hellal et al.
Taxol stimulates the capacity of axons to grow after spinal cord injury.

CONTENTS continued >>
SCIENCEONLINE

SPECIAL FEATURE
Slideshow: 2010 Visualization Challenge
Browse the striking sights, sounds, and motion that represent the contest’s winning entries and honorable mentions.
www.sciencemag.org/special/vis2010/

SCIENCESIGNALING
www.sciencesignaling.org
The Signal Transduction Knowledge Environment
15 February issue: http://scim.ag/ss15Feb11

RESEARCH ARTICLE: MUC1-C Oncoprotein Promotes STAT3 Activation in an Auto-Inductive Regulatory Loop
R. Ahmed et al.
An inflammatory response of epithelial cells may be co-opted to promote cancer cell survival.

EDITORIAL GUIDE: Focus Issue—Conquering the Data Mountain
N. R. Gough and M. B. Yaffe
Massive data sets create challenges for annotation, sharing, and presentation.

PERSPECTIVE: Effective Representation and Storage of Mass Spectrometry-Based Proteomic Data Sets for the Scientific Community
J. V. Olsen and M. Mann
Proteomics data need a “reliability” tag to allow scientists to discriminate among data sets in public repositories.

PERSPECTIVE: The Potential Cost of High-Throughput Proteomics
F. M. White
The production of false leads by automated curation of high-throughput proteomic data sets exerts a toll on biological research and advancement.

PERSPECTIVE: Integrating Multiple Types of Data for Signaling Research—Challenges and Opportunities
H. S. Wiley
Easy integration of biological data has enormous potential to drive advances in biology and medicine.

PERSPECTIVE: Setting the Standards for Signal Transduction Research
J. Saez-Rodriguez et al.
Standardized methods to link large, complex data sets to models are needed.

PRESENTATION: Visual Representation of Scientific Information
B. Wong
Judicious choice of graphical representations can improve visual communication.

SCIENCECAREERS
www.sciencemag.org/career_magazine
Free Career Resources for Scientists
Tooling Up: Playing the Name Game
D. Jensen
Need to find out who’s who inside a company? Here’s how the pros do it.
http://scim.ag/fh0nC

Seeing Is Believing
J. Carpenter
Trained as a chemical engineer, Jon Heras has moved on to become a professional science illustrator and animator.
http://scim.ag/i06erj

SCIENTRANSITIONAL MEDICINE
www.sciencetranslationalmedicine.org
Integrating Medicine and Science
16 February issue: http://scim.ag/stm021611

COMMENTARY: Thinking Outside the Box—Fostering Innovation and Non-Hypothesis-Driven Research at NIH
R. Aragon
NIH programs that fund the development of high-risk technologies contribute to translational research.

RESEARCH ARTICLE: Growth Hormone Receptor Deficiency Is Associated with a Major Reduction in Pro-Aging Signaling, Cancer, and Diabetes in Humans
J. Guevara-Aguirre et al.
Ecuadorians who have a genetic mutation in the growth hormone receptor almost never die of cancer or diabetes complications.

RESEARCH ARTICLE: The Effect of Treatment Expectation on Drug Efficacy—Imaging the Analogic Benefit of the Opioid Remifentanil
U. Bingel et al.
PERSPECTIVE: For Placebo Effects in Medicine, Seeing Is Believing
R. L. Gollub and J. Kang
Non-invasive whole-brain imaging can enhance our understanding of brain-based placebo effects.

SCIENCEPODCAST
www.sciencemag.org/multimedia/podcast
Free Weekly Show
On the 18 February Science Podcast: pollutant-resistant fish, forensic genetics, the 2010 Visualization Challenge, and more.

SCIENCEINSIDER
news.sciencemag.org/scienceinsider
Science Policy News and Analysis
SPECIAL SERIES
http://scim.ag/genome10
Human Genome 10th Anniversary
A special month-long series explores the impacts of the genomics revolution on science and society.

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. 444460) paid at Washington, DC, and additional mailing offices. Copyright © 2011 by the American Association for the Advancement of Science. The title SCIENCE is a registered trademark of the AAS. Domestic individual membership and subscription (5 issues): $114.75; (7 issues) allocated to subscription). Domestic Institutional subscription (5 issues): $199.00 Foreign postage extra: Mexico, Caribbean (surface mail) $115; all other countries (air delivery) $185. First class, airmail, student, and emeritus rates on request. Canadian rates with GST available upon request. GST #12345 80322. Publications Mail Agreement Number 406424. 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 AAS, P.O. Box 9167, Washington, DC 20090-6167. Single-copy sales: $5.00 current issue, $25.00 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 AAS to libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service, provided that $25.00 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.