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- 662 100-GHz Transistors from Wafer-Scale Epitaxial Graphene
Y.-M. Lin et al.
The maximum switching frequency of these devices exceeds that of silicon transistors with similar gate-electrode dimensions.
>> *Science Podcast*

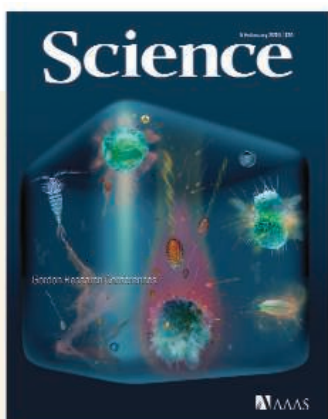
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COVER

A milliliter of seawater. Motile marine bacteria can take advantage of highly heterogeneous landscapes of dissolved organic carbon, resulting from zooplankton excretions (left), leakage by phytoplankton (top) and marine snow particles (bottom), and phytoplankton lysis (right). The Gordon Research Conference on Marine Microbes will be held 4 to 9 July 2010 at Tilton School, Tilton, NH. See page 708 for a preliminary conference schedule.

Image: Roman Stocker (romans@mit.edu), Justin Seymour, Glynn Gorick

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- 665** Visualizing Critical Correlations Near the Metal-Insulator Transition in $\text{Ga}_{1-x}\text{Mn}_x\text{As}$
A. Richardella et al.

Scanning tunneling microscopy reveals the import role of electron-electron interactions in a dilute magnetic semiconductor.
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- 669** A Coherent Beam Splitter for Electronic Spin States
J. R. Petta et al.

A series of electrical pulses is used to demonstrate quantum control of a double quantum dot system.
>> *Perspective p. 650*

- 672** Water Freezes Differently on Positively and Negatively Charged Surfaces of Pyroelectric Materials
D. Ehre et al.

Supercooled water on a surface can freeze upon heating in response to surface charge switching from negative to positive.

- 676** Effect of Ocean Acidification on Iron Availability to Marine Phytoplankton
D. Shi et al.

Ocean acidification caused by anthropogenic carbon dioxide is changing the chemistry and bioavailability of iron in seawater.
>> *Perspective p. 654*

- 679** Gradual Adaptation Toward a Range-Expansion Phenotype Initiated the Global Radiation of Toads
I. Van Bocklaer et al.

The range expansions and species radiations of toads required the evolution of an optimal dispersal phenotype.
>> *News story p. 633*

- 682** Flight Orientation Behaviors Promote Optimal Migration Trajectories in High-Flying Insects
J. W. Chapman et al.

Radar reveals that insects use high-altitude winds and correct for crosswind drift during long-range migrations.

- 685** Conformational Spread as a Mechanism for Cooperativity in the Bacterial Flagellar Switch
F. Bai et al.

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- 689** Cryo-EM Model of the Bullet-Shaped Vesicular Stomatitis Virus
P. Ge et al.

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- 693** Abundance of Ribosomal RNA Gene Copies Maintains Genome Integrity
S. Ide et al.

In eukaryotes, multiple copies of ribosomal DNA protect it from transcription-induced replication damage.

- 697** Evolutionary Dynamics of Complex Networks of HIV Drug-Resistant Strains: The Case of San Francisco
R. J. Smith? et al.

Modeling of data from the U.S. indicates the potential for an epidemic wave of antiretroviral-resistant HIV.

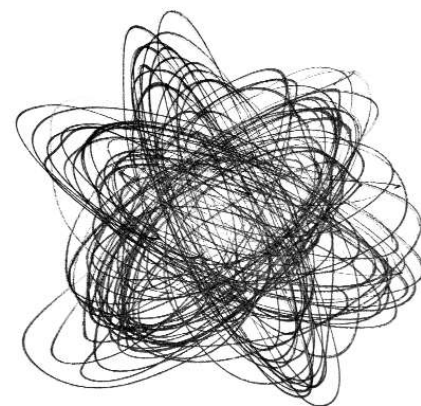
- 701** Optimal Localization by Pointing Off Axis
Y. Yovel et al.

Echolocating Egyptian fruit bats do not center their sonar clicks on a target, thereby maximizing localization of the target.
>> *Science Podcast*

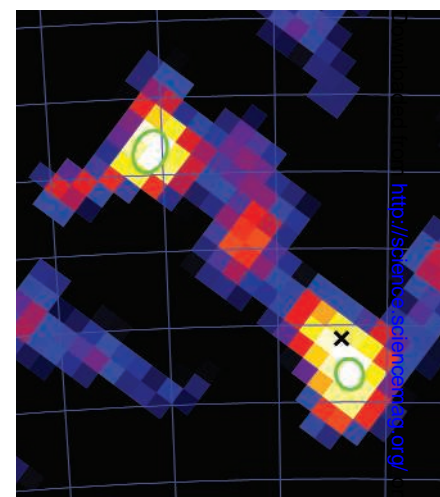
- 704** Axon Extension Occurs Independently of Centrosomal Microtubule Nucleation
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Reconstructing Past Seawater Mg/Ca and Sr/Ca from Mid-Ocean Ridge Flank Calcium Carbonate Veins

R. M. Coggon et al.

Calcium carbonate veins from the ocean crust can be used to reconstruct past ocean cation ratios.
10.1126/science.1182252

Regulation of Alternative Splicing by Histone Modifications

R. F. Luco et al.

Histone modifications regulate alternative splicing through physical cross talk with the splicing machinery.
10.1126/science.1184208

NMR Structure Determination for Larger Proteins Using Backbone-Only Data

S. Raman et al.

Protein structures can be determined by using the limited nuclear magnetic resonance information obtainable for larger proteins.
10.1126/science.1183649

Retromer Is Required for Apoptotic Cell Clearance by Phagocytic Receptor Recycling

D. Chen et al.

An intracellular membrane-sorting machinery participates in cellular corpse clearance.
10.1126/science.1184840

Plumage Color Patterns of an Extinct Dinosaur

Q. Li et al.

Comparison of melanosome shape and density between fossil feathers and modern ones reveals the appearance and color of a theropod.
10.1126/science.1186290

TECHNICALCOMMENTS

Comment on "Unexpected Epoxide Formation in the Gas-Phase Photooxidation of Isoprene"

M. Claeys

full text at www.sciencemag.org/cgi/content/full/327/5966/644-b

Response to Comment on "Unexpected Epoxide Formation in the Gas-Phase Photooxidation of Isoprene"

F. Paulot et al.

full text at www.sciencemag.org/cgi/content/full/327/5966/644-c

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Highlights From Our Daily News Coverage

Foster Care for Chimps

Researchers say adoptions in the wild show evidence of altruism.

The Ape That Never Grows Up

Could a slow-to-mature brain explain the bonobo's social nature?

How Carnations Conquered Europe

Rapid diversification of flower suggests continent may have been an evolutionary hot spot.

SCIENCE SIGNALING

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RESEARCH ARTICLE: Noncoding RNA Gas5 Is a Growth Arrest- and Starvation-Associated Repressor of the Glucocorticoid Receptor

T. Kino et al.

Gas5 is a noncoding RNA that acts as a decoy glucocorticoid response element to inhibit glucocorticoid-mediated transcription.

MEETING REPORT: BMPs—From Bone to Body Morphogenetic Proteins

D. Obradovic Wagner et al.

Discussion at a meeting in Berlin, Germany, showed that BMPs have essential functions in organs and tissues besides bone.

PODCAST

T. Kino and A. M. VanHook

A noncoding RNA competes with DNA for binding to the glucocorticoid receptor.

SCIENCE CAREERS

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SPECIAL MARRIED-WITH-CHILDREN ISSUE

A Husband and Wife Play Science on the Same Team

C. Wald

Michael Crickmore and Dragana Rogulja have similar research interests but keep their professional identities separate.

Making Science and Family Fit

E. Pain

A mother of three, Michal Sharon has managed to have both a family and a scientific career.

Taken for Granted: Where Two Issues Stand

B. L. Benderly

Lab safety slowly advances, while University of California postdoc contract negotiations stall.

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PERSPECTIVE: Engineered Proteins

Pull Double Duty

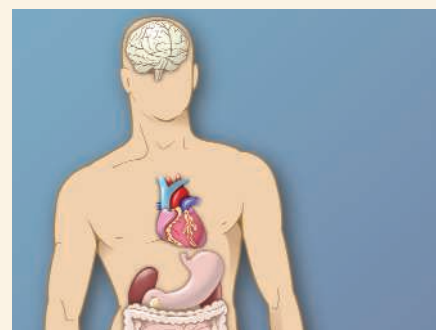
J. R. Cochran

Single proteins that hit two targets enhance therapeutic effects.

COMMENTARY: Bioethical and Clinical Dilemmas of Direct-to-Consumer Personal Genomic Testing—The Problem of Misattributed Equivalence

C. Eng and R. R. Sharp

What are the challenges associated with direct-to-consumer genomic tests compared with validated clinical genetic tests?



SCIENCE SIGNALING
Sites of BMP action.

RESEARCH ARTICLE: Identification of Therapeutic Targets for Quiescent, Chemotherapy-Resistant Human Leukemia Stem Cells

Y. Saito et al.

CD32, a molecule specifically found in human leukemia stem cells, is a promising target for therapy.

RESEARCH ARTICLE: Inducing CTLA-4-Dependent Immune Regulation by Selective CD28 Blockade Promotes Regulatory T Cells in Organ Transplantation

N. Poirier et al.

An improved method of immunosuppression enhances the survival of transplanted organs in nonhuman primates.

SCIENCEPODCAST

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