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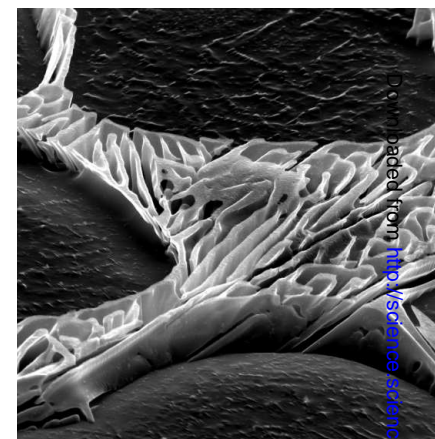
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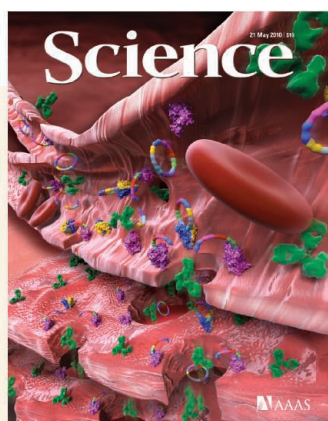


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## COVER

Tumor-penetrating transport of cancer drugs is activated by the peptide iRGD (multicolored ring), which binds to integrin receptors (blue and yellow) in tumor blood vessels, and is subsequently cleaved. The cleaved peptide then binds to neuropilin-1 receptors (purple), activating a transport system that carries coadministered drugs, such as antibodies (green), deeper into tumor tissue. See page 1031.

**Image:** Peter Allen/University of California, Santa Barbara

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Mutation of a small noncoding RNA drives adaptive evolution in a social bacterium.

## RESEARCH ARTICLE

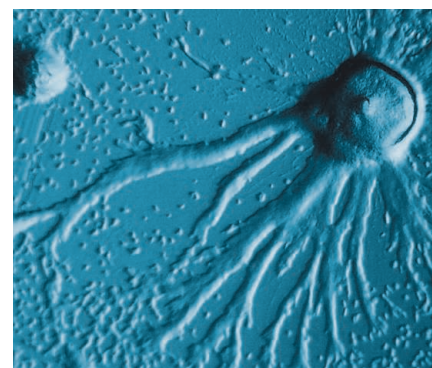
- 994 **A Catalog of Reference Genomes from the Human Microbiome**  
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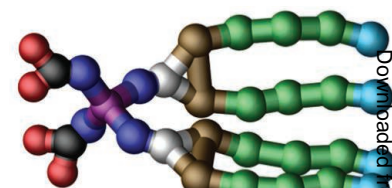
- 999 **Observation of Plasmarons in Quasi-Freestanding Doped Graphene**  
A. Bostwick et al.  
Doping of graphene introduces two new crossing points of the conduction and valence-electron bands.
- 1003 **Large Angular Jump Mechanism Observed for Hydrogen Bond Exchange in Aqueous Perchlorate Solution**  
M. Ji et al.  
Water molecules shift orientation between dissolved ions and the surrounding liquid by taking large, sudden steps.
- 1006 **Cooperativity in Ion Hydration**  
K. J. Tielrooij et al.  
When salts dissolve in water, the separated cations and anions can still collectively impact the liquid structure.  
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- 1009 **Self-Assembly of Janus Dendrimers into Uniform Dendrimersomes and Other Complex Architectures**  
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- 1014 **Lopsided Growth of Earth's Inner Core**  
M. Monnereau et al.  
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A. Deuss et al.  
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N. L. Samara et al.  
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- 1029 **Network Diversity and Economic Development**  
N. Eagle et al.  
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- 1031 **Coadministration of a Tumor-Penetrating Peptide Enhances the Efficacy of Cancer Drugs**  
K. N. Sugahara et al.  
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- 1036 **Five-Vertebrate ChIP-seq Reveals the Evolutionary Dynamics of Transcription Factor Binding**  
D. Schmidt et al.  
Binding of two liver-specific transcription factors in several vertebrate species reveals complex regulatory evolution.
- 1040 **pH Sensing by Intracellular *Salmonella* Induces Effector Translocation**  
X.-J. Yu et al.  
Intravacuolar *Salmonella* sense host cytosolic pH, resulting in degradation of a regulatory complex and effector translocation.  
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- 1043 **A Global Protein Kinase and Phosphatase Interaction Network in Yeast**  
A. Breitkreutz et al.  
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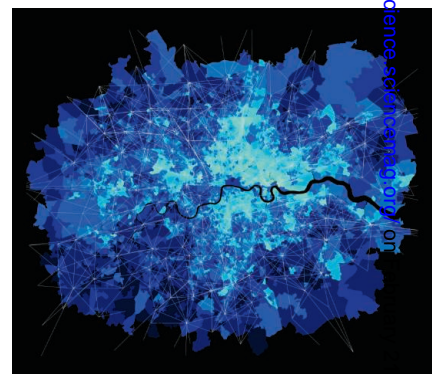
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## SCIENCEONLINE

## SCIENCEEXPRESS

[www.scienceexpress.org](http://www.scienceexpress.org)

### Creation of a Bacterial Cell Controlled by a Chemically Synthesized Genome

*D. G. Gibson et al.*

A synthetic *Mycoplasma mycoides* genome transplanted into *M. capricolum* was able to control the host cell.

10.1126/science.1190719

>> *News story p. 958; Science Podcast*

### ATP-Binding Cassette Transporters and HDL Suppress Hematopoietic Stem Cell Proliferation

*L. Yvan-Charvet et al.*

Pathways that reduce cholesterol in atherosclerosis also suppress increased immune cell numbers associated with the disease.

10.1126/science.1189731

### Covering a Broad Dynamic Range: Information Processing at the Erythropoietin Receptor

*V. Becker et al.*

Modeling and experiments help to explain responsiveness of red blood cell precursors to very large changes in a proliferative signal.

10.1126/science.1184913

### Identification of Germline Stem Cells in the Ovary of the Teleost Medaka

*S. Nakamura et al.*

Ongoing follicle production is maintained by stem cells in an adult fish ovary.

10.1126/science.1185473

### Measurement of the Instantaneous Velocity of a Brownian Particle

*T. Li et al.*

An optically trapped silica bead in solution is used to probe assumptions underlying statistical theories of Brownian motion.

10.1126/science.1189403

>> *Science Podcast*

### Closing Loopholes: Getting Illegal Fishing Under Control

*S. Flothmann et al.*

10.1126/science.1190245

## SCIENCENOW

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Highlights From Our Daily News Coverage

### Golden Years Truly Are Golden

Massive phone survey reveals that people are happier after age 50.

### The Scent That Makes Mice Run Scared

Mice are hard-wired to detect urinary proteins secreted by a wide variety of predators.

### Vision Cells Help Set the Body's Clock

Research could lead to new therapies for depression and insomnia.

## SCIENCE SIGNALING

[www.sciencesignaling.org](http://www.sciencesignaling.org)

The Signal Transduction Knowledge Environment

### RESEARCH ARTICLE: TREM2- and DAP12-Dependent Activation of PI3K Requires DAP10 and Is Inhibited by SHIP1

*Q. Peng et al.*

The inositol phosphatase SHIP1 binds to a receptor-adaptor complex on osteoclasts to prevent recruitment of PI3K and inhibit receptor signaling.

### RESEARCH ARTICLE: c-mip Impairs Podocyte Proximal Signaling and Induces Heavy Proteinuria

*S. Zhang et al.*

Overexpression of the protein c-mip in mice produces phenotypes similar to various idiopathic kidney disorders.

### PERSPECTIVE: Gyrate—CCM3 Dances with a Different Angiogenic Partner

*L. A. Dyer et al.*

CCM3 is a key regulator of a major signaling pathway involved in vascular development.

## SCIENCE CAREERS

[www.sciencereers.org/career\\_magazine](http://www.sciencereers.org/career_magazine)

Free Career Resources for Scientists

### Hard Work and Drive Propels a Scientist From China to the United States

*R. Mejia*

A passion for learning led virologist Fenyong Liu into top American labs.

### Tooling Up: The Medical Writing and Corporate Intelligence Career Tracks

*D. Jensen*

Jim Gardner follows a career as a medical writer with another as a corporate sleuth.

### GrantsNet Funding News

*D. Adams*

Learn about the latest research and training grants for students, postdocs, and faculty.

## SCIENCE TRANSLATIONAL MEDICINE

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Integrating Medicine and Science

### EDITORIAL: On Board with the Cures Acceleration Network

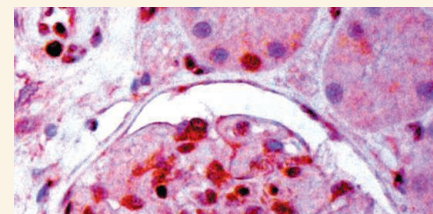
*E. G. Nabel*

The new U.S. health care legislation includes funding mechanisms to accelerate the development of "high-need cures."

### REVIEW: Deciphering Genetic Disease in the Genomic Era—The Model of GnRH Deficiency

*G. P. Sykiotis et al.*

Elucidation of the genetic causes of human disease requires unbiased, patient-oriented investigations.



## SCIENCE SIGNALING

New target for kidney disease.

### RESEARCH ARTICLE: Androgen Receptor Promotes Hepatitis B Virus-Induced Hepatocarcinogenesis Through Modulation of Hepatitis B Virus RNA Transcription

*M.-H. Wu et al.*

Targeting the androgen receptor may prevent hepatitis B virus-induced liver cancer.

### RESEARCH ARTICLE: Tryptophan Catabolism by Indoleamine 2,3-Dioxygenase 1 Alters the Balance of T<sub>H</sub>17 to Regulatory T Cells in HIV Disease

*D. Favre et al.*

### PERSPECTIVE: Insights into Therapy—Tryptophan Oxidation and HIV Infection

*M. F. Murray*

New findings link tryptophan breakdown to immune cell imbalance and chronic inflammation associated with HIV/AIDS.

## SCIENCE PODCAST

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Download the 21 May *Science* Podcast to hear about bacterial cells controlled by a synthetic genome, instantaneous Brownian velocity, the evolution of language, and more.

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Science Policy News and Analysis

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