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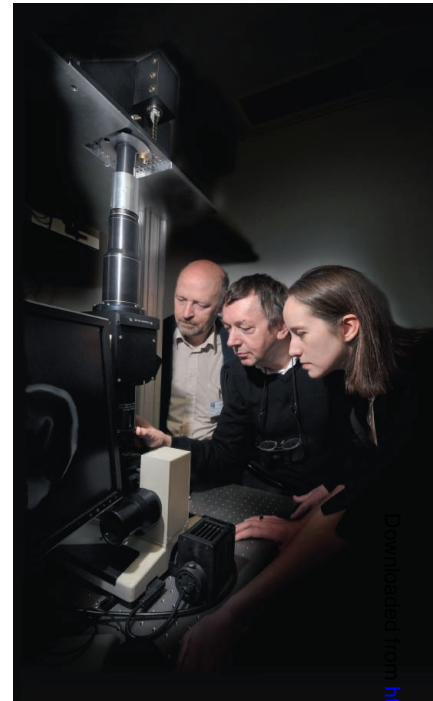
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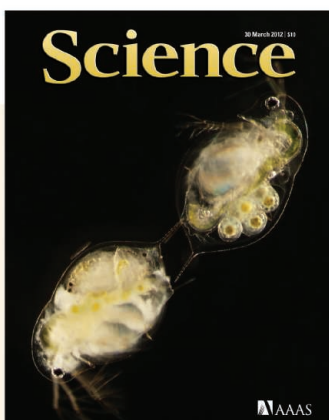
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COVER

Two *Daphnia dentifera*, each ~2 millimeters long. The organism at bottom left is infected with a virulent yeast parasite, causing her bright white appearance. The food web in which the host-parasite interaction is embedded determines the size of the epidemic, which, in turn, determines whether the *Daphnia* population becomes more resistant or more susceptible during the epidemic. See page 1636.

Credit: Meghan A. Duffy

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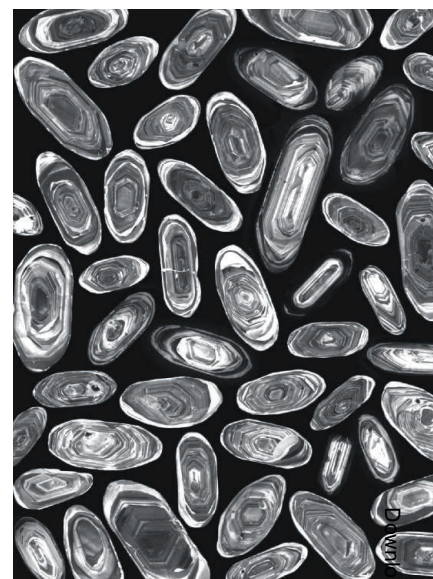
- 1596** Integrated Electromicrobial Conversion of CO₂ to Higher Alcohols
H. Li et al.
An engineered microbe transforms carbon dioxide into a prospective liquid fuel in tandem with electrical power rather than light.

REPORTS

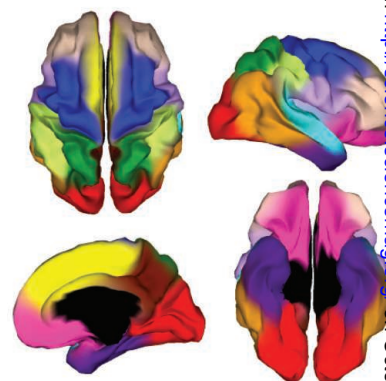
- 1597** Emerging Chirality in Artificial Spin Ice
W. R. Branford et al.
A nanomagnetic honeycomb structure exhibits an asymmetric response to a magnetic field sweep and an electric current.
- 1600** Disentangling the Electronic and Phononic Glue in a High-*T_c* Superconductor
S. Dal Conte et al.
A time-resolved optical technique resolves the influence of lattice dynamics on electron pairing in a cuprate.
- 1603** Coherent Sensing of a Mechanical Resonator with a Single-Spin Qubit
S. Kolkowitz et al.
The spin of a nitrogen vacancy defect in diamond is used to sense the motion of a magnetized microresonator.
>> *Perspective p. 1584*
- 1606** Hydrocarbon Separations in a Metal-Organic Framework with Open Iron(II) Coordination Sites
E. D. Bloch et al.
Tighter binding of olefins to iron centers in a sorbent facilitates their efficient separation from saturated hydrocarbons.
- 1610** ²³⁸U/²³⁵U Systematics in Terrestrial Uranium-Bearing Minerals
J. Hiess et al.
Highly variable uranium isotope ratios highlight the need for a revised approach to radiometric dating.
>> *Perspective p. 1585; Science Podcast*
- 1614** A Shorter ¹⁴⁶Sm Half-Life Measured and Implications for ¹⁴⁶Sm-¹⁴²Nd Chronology in the Solar System
N. Kinoshita et al.
Mantle differentiation of Earth, the Moon, and Mars occurred earlier and over a shorter time scale than previously estimated.
- 1617** Control of Sleep by Cyclin A and Its Regulator
D. Rogulja and M. W. Young
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F. Liu et al.
An *Arabidopsis* protein that functions in gene silencing is shown to be involved in nascent RNA cleavage as well.
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K. Vervaeke et al.
Synaptic charge spreads into the dendrites of neighboring interneurons via dendritic gap junctions.
- 1628** The Geometric Structure of the Brain Fiber Pathways
V. J. Wedeen et al.
The macroscopic pathways of human brain nerve fibers are organized according to a single, highly curved three-dimensional grid.
>> *Science Podcast*
- 1634** Hierarchical Genetic Organization of Human Cortical Surface Area
C.-H. Chen et al.
Human brain structure is genetically controlled in a hierarchical, modular, and symmetric fashion.
>> *Perspective p. 1582*
- 1636** Ecological Context Influences Epidemic Size and Parasite-Driven Evolution
M. A. Duffy et al.
When the physiological cost of host resistance to a disease damages reproductive output, disease susceptibility can evolve.
- 1638** Rapamycin-Induced Insulin Resistance Is Mediated by mTORC2 Loss and Uncoupled from Longevity
D. W. Lamming et al.
The effect of the drug rapamycin on life span can be separated from its effects on metabolism.
>> *Perspective p. 1578*
- 1643** hnRNP C Tetramer Measures RNA Length to Classify RNA Polymerase II Transcripts for Export
A. McCloskey et al.
A nuclear protein measures the length of newly made RNAs and sorts them into distinct pathways for export.

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SCIENCEONLINE

SCIENCEEXPRESS

www.sciencexpress.org

Neonicotinoid Pesticide Reduces Bumble Bee Colony Growth and Queen Production

P. R. Whitehorn et al.

Bumble bee colonies produce many fewer queens after exposure to a widely used insecticide.
10.1126/science.1215025

A Common Pesticide Decreases Foraging Success and Survival in Honey Bees

M. Henry et al.

Honey bees cannot find their way home after exposure to sublethal doses of a widely used insecticide.
10.1126/science.1215039

>> *News story p. 1555*

GBP5 Promotes NLRP3 Inflammasome Assembly and Immunity in Mammals

A. R. Shenoy et al.

A human protein activates the assembly of a cellular complex that detects signs of infection.
10.1126/science.1217141

Organic Synthesis via Irradiation and Warming of Ice Grains in the Solar Nebula

F. J. Ciesla and S. A. Sandford

A mechanism for production of carbon compounds in the interstellar medium could also operate in protoplanetary disks.
10.1126/science.1217291

Complex Protostellar Chemistry

J. A. Nuth III and N. M. Johnson

10.1126/science.1219709

Carbon Isotope Constraints on the Deglacial CO₂ Rise from Ice Cores

J. Schmitt et al.

The stable isotopic composition of the carbon in carbon dioxide over the last 24,000 years illuminates past carbon cycle behavior.
10.1126/science.1217161

The Ice Age Carbon Puzzle

E. Brook

10.1126/science.1219710

TECHNICAL COMMENTS

Comments and Response on "Disentangling the Drivers of β Diversity Along Latitudinal and Elevational Gradients"

Comment: *H. Qian et al.*

Full text at www.sciencemag.org/cgi/content/ful/335/6076/1573-b

Comment: *H. Tuomisto and K. Ruokolainen*

Full text at www.sciencemag.org/cgi/content/ful/335/6076/1573-c

Response: *N. J. B. Kraft et al.*

Full text at www.sciencemag.org/cgi/content/ful/335/6076/1573-d

SCIENCE NOW

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Highlights From Our Daily News Coverage

Oil Spill's 'Frothy Gunk' Harming Corals

A 2010 disaster coated deep-sea corals with oil more than 11 kilometers from the well site.
http://scim.ag/Frothy_Gunk

Findings Cast Doubt on Moon Origins

The giant impact hypothesis struggles to explain the similarity between Earth and the Moon's composition.
http://scim.ag/Moon_Origins

Earth Warming Faster Than Expected
Global temperatures could be 3°C hotter by mid-century.
http://scim.ag/Global_Temperatures

SCIENCE SIGNALING

www.sciencesignaling.org

The Signal Transduction Knowledge Environment

27 March issue: <http://scim.ag/ss032712>

EDITORIAL GUIDE: Focus Issue—TOR Signaling, A Tale of Two Complexes

N. R. Gough

This issue highlights developments in the signaling network associated with the kinase TOR.

RESEARCH ARTICLE: Chronic Activation of mTOR Complex 1 Is Sufficient to Cause Hepatocellular Carcinoma in Mice

S. Menon et al.

Aberrant activation of mTORC1 disrupts tissue homeostasis, leading to carcinogenesis.

RESEARCH ARTICLE: A Dynamic Network Model of mTOR Signaling Reveals TSC-Independent mTORC2 Regulation

P. Dalle Pezze et al.

PERSPECTIVE: Deconvolution of mTORC2 "in Silico"

D. C. Fingar and K. Inoki

Modeling and testing network structures reveals a distinct mechanism of mTORC2 activation by insulin.

RESEARCH RESOURCE: Hyperplexing—A Method for Higher-Order Multiplexed Quantitative Proteomics Provides a Map of the Dynamic Response to Rapamycin in Yeast

N. Dephoure and S. P. Gygi

A dual-labeling strategy enables high-throughput analysis of multiple samples by mass spectrometry.

PERSPECTIVE: Phospholipase D and mTORC1—Nutrients Are What Bring Them Together

B. M. Wiczler and G. Thomas

Activation of PLD1 by amino acids enables mTORC1 to respond to nutrient abundance.

SCIENCE TRANSLATIONAL MEDICINE

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Integrating Medicine and Science

28 March issue: <http://scim.ag/stm032812>

SPECIAL ISSUE: CONQUERING CANCER, CLOSING THE TRANSLATIONAL GAP

EDITORIAL: *Winning the War—Science Parkour*

B. Vogelstein and K. W. Kinzler

Experts pinpoint blocks to conquering cancer and highlight state-of-the-art science and strategies to sidestep these obstacles.

PERSPECTIVE: Raising the Bar—The Curative Potential of Human Cancer Immunotherapy

S. A. Rosenberg

PERSPECTIVE: Pluripotent Stem Cell–Based Cancer Therapy—Promise and Challenges

S. J. Sharkis et al.

PERSPECTIVE: Intratumor Heterogeneity—Seeing the Wood for the Trees

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REVIEW: Improving Treatment of HER2-Positive Cancers—Opportunities and Challenges

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REVIEW: Beyond PSA—The Next Generation of Prostate Cancer Biomarkers

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REVIEW: Applying What We Know to Accelerate Cancer Prevention

G. A. Colditz et al.

RESEARCH ARTICLE: Anti-Invasive Adjuvant Therapy with Imipramine Blue Enhances Chemotherapeutic Efficacy Against Glioma

J. M. Munson et al.

RESEARCH ARTICLE: Colocalization of Inflammatory Response with B7-H1 Expression in Human Melanocytic Lesions Supports an Adaptive Resistance Mechanism of Immune Escape

J. M. Taube et al.

RESEARCH ARTICLE: Targeting of AML1-ETO in t(8;21) Leukemia by Oridonin Generates a Tumor Suppressor–Like Protein

T. Zhen et al.

SCIENCE CAREERS

www.sciencereers.org/career_magazine

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Does a Professional Science Master's Degree Pay Off?

S. Carpenter

Data on PSM graduates' employment outcomes are scarce, but anecdotal evidence of success abounds.

http://scim.ag/PSM_Payoff

Plant Hunters

E. Pain

Plant collecting offers excitement for adventurous scientists—at some cost in comfort and security.

<http://scim.ag/PlantHunters>

NPA Founders Find Success

M. Price

The founders the National Postdoctoral Association say that the experience helped their careers.

http://scim.ag/NPA_Founders

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On the 30 March *Science* Podcast: uranium age-dating, the brain's geometry, data replication, and more.

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