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- 52 A Biological Screw in a Beetle's Leg
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Joints on the legs of weevils form a functional screw-and-nut system.

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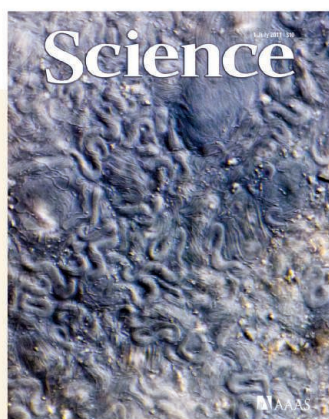


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COVER

Differential interference contrast microscopy image showing the gut microbial community of the termite *Reticulitermes tibialis*. Coursing among larger protozoa (ranging in size from 10 to 60 micrometers) are thin, wavy bacteria known as spirochetes, as well as viruses not visible at this magnification. Using a microfluidic digital polymerase chain reaction approach, Tadmor *et al.* examine the interactions between uncultured bacteria and their associated viruses in the termite hindgut. See page 58.

Image: Jared R. Leadbetter, California Institute of Technology

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M. Li et al.

All 12 categories of discordances can be observed where the RNA sequence does not match that of the DNA.

- 58 **Probing Individual Environmental Bacteria for Viruses by Using Microfluidic Digital PCR**

A. D. Tadmor et al.

Matching environmental phage with single, uncultured bacterial host cells reveals remarkable species specificity.

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U. Tkalec et al.

Colloidal particles inside a liquid crystalline solvent can be manipulated to create knots of arbitrary shape and complexity.

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S. Franke-Arnold et al.

A spinning slow-light medium (ruby crystal) is used to enhance the rotation of light.

- 68 **Superelastic Effect in Polycrystalline Ferrous Alloys**

T. Omori et al.

A superelastic alloy formed from common elements operates over a wide temperature window.

- 71 **Solvated Electrons in High-Temperature Melts and Glasses of the Room-Temperature Stable Electride $[\text{Ca}_{24}\text{Al}_{28}\text{O}_{64}]^{4+ \cdot 4e^-}$**

S. W. Kim et al.

Solvated electrons persist in high-temperature melts and quenched melts of a calcium aluminum oxide.

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- 74 **Large Sulfur Isotope Fractionation Does Not Require Disproportionation**

M. S. Sim et al.

In the absence of oxygenation, microbial activity can explain the magnitude of sulfur-isotope traces in sediments.

- 77 **Formation and Spread of Aircraft-Induced Holes in Clouds**

A. J. Heymsfield et al.

Aircraft passing through clouds that contain supercooled liquid water can produce holes and canals in those clouds.

- 81 **Pattern in Escalations in Insurgent and Terrorist Activity**

N. Johnson et al.

The escalation of fatal attacks by insurgent groups follows a common pattern.

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- 84 **Mechanism of RAD51-Dependent DNA Interstrand Cross-Link Repair**

D. T. Long et al.

An in vitro system reveals the steps involved in repairing covalent links between DNA strands of the double helix.

- 87 **A Key Enzyme in the Biogenesis of Lysosomes Is a Protease That Regulates Cholesterol Metabolism**

K. Marschner et al.

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- 90 **Long Unfolded Linkers Facilitate Membrane Protein Import Through the Nuclear Pore Complex**

A. C. Meinema et al.

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K. Knox et al.

Chronic fatigue syndrome patients reported previously to be XMRV-infected show no signs of the virus in an independent evaluation.

- 97 **Recombinant Origin of the Retrovirus XMRV**

T. Paprotka et al.

Analysis of the origin of XMRV suggests that links between the virus and human disease are due to laboratory contamination.

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J. J. Faith et al.

Model microbial communities in mouse guts respond quickly and predictably to dietary shifts.

- 104 **Oxytocin Selectively Gates Fear Responses Through Distinct Outputs from the Central Amygdala**

D. Viviani et al.

Specific neuronal populations in the amygdala control different behavioral and physiological components of the fear response.

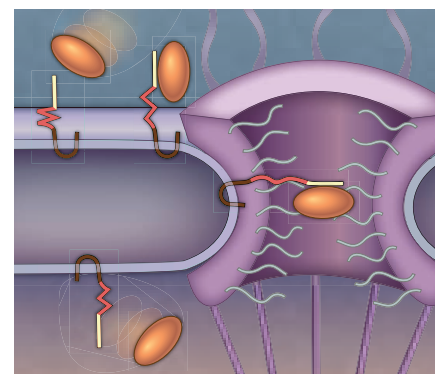
- 108 **Following the Crowd: Brain Substrates of Long-Term Memory Conformity**

M. Edelson et al.

Firmly held memory representations in the brain can be altered by social influence.

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SCIENCEONLINE

SCIENCEEXPRESS

www.scienceexpress.org

Isolation of Succinivibrionaceae Implicated in Low Methane Emissions from Tammar Wallabies
P. B. Pope et al.

Metagenome sequence predicted the culture conditions required for successful isolation of a marsupial gut bacterium.
10.1126/science.1205760

Structural Basis for Tail-Anchored Membrane Protein Biogenesis by the Get3-Receptor Complex
S. Stefer et al.

Docking of cytoplasmic and membrane receptors facilitates conformational changes that drive protein insertion.
10.1126/science.1207125

Altered Telomeres in Tumors with *ATRX* and *DAXX* Mutations
C. M. Heaphy et al.

Chromosome tips seem to be maintained by an unusual mechanism in tumors that have mutations in chromatin remodeling genes.
10.1126/science.1207313

Trace Metals as Biomarkers for Eumelanin Pigment in the Fossil Record
R. A. Wogelius et al.

X-ray maps of fossil feather pigments reveal color patterning in extinct bird species.
10.1126/science.1205748

Friction Anisotropy-Driven Domain Imaging on Exfoliated Monolayer Graphene
J. S. Choi et al.

Otherwise identical regions of supported graphene can be distinguished by changes in friction with sliding direction.
10.1126/science.1207110

TECHNICALCOMMENTS

Comment on "The Mechanism for Activation of GTP Hydrolysis on the Ribosome"
A. Liljas et al.

Full text at www.sciencemag.org/cgi/content/full/333/6038/37-a

Response to Comment on "The Mechanism for Activation of GTP Hydrolysis on the Ribosome"
R. M. Voorhees et al.

Full text at www.sciencemag.org/cgi/content/full/333/6038/37-b

SCIENCENOW

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Highlights From Our Daily News Coverage

For Conservationists, the (Tasmanian) Devil Is in the Details

The newly sequenced genome of the endangered marsupial could help future generations fight off devastating facial tumor disease.
<http://scim.ag/taz-cancer>

LSD Alleviates 'Suicide Headaches'

Patients taking an analog of a psychedelic drug report fewer and less intense cluster headaches.
<http://scim.ag/lsd-headache>

When the Snake Bites ... Try Ointment

A salve that contains nitroglycerin might delay movement of snake venom.
http://scim.ag/snake_bite

SCIENCE SIGNALING

www.sciencesignaling.org

The Signal Transduction Knowledge Environment
28 June issue: <http://scim.ag/ss062811>

EDITORIAL GUIDE: Focus Issue—Choreographing the Dance of the Mitotic Kinases

N. R. Gough

Research into the phosphoproteome targeted by mitotic kinases reveals insight into the coordination of the activity of these kinases during cell division.

RESEARCH ARTICLE: Spatial Exclusivity Combined with Positive and Negative Selection of Phosphorylation Motifs Is the Basis for Context-Dependent Mitotic Signaling
J. Alexander et al.

RESEARCH RESOURCE: Quantitative Phosphoproteomics Identifies Substrates and Functional Modules of Aurora and Polo-Like Kinase Activities in Mitotic Cells
A. N. Kettenbach et al.

PERSPECTIVE: Substrates of Mitotic Kinases
L. N. Johnson

New research provides insight into how substrate selectivity of the multiple kinases that control mitosis is achieved.

RESEARCH RESOURCE: Mitotic Substrates of the Kinase Aurora with Roles in Chromatin Regulation Identified Through Quantitative Phosphoproteomics of Fission Yeast

A. Koch et al.

The kinase Aurora influences multiple aspects of chromatin architecture and function during mitosis.

PODCAST

S. Hauf et al.

Two studies shed light on cell cycle-dependent protein phosphorylation during mitosis in yeast.

SCIENCE TRANSLATIONAL MEDICINE

www.sciencetranslationalmedicine.org

Integrating Medicine and Science

29 June issue: <http://scim.ag/stm062911>

COMMENTARY: The Fiber of Modern Society
E. R. Edelman and M. B. Leon

COMMENTARY: Repaving the Road to Biomedical Innovation Through Academia
A. R. Marks

COMMENTARY: How to Revive Breakthrough Innovation in the Pharmaceutical Industry
B. H. Munos and W. W. Chin

In a series of articles, diverse experts engage in a critical dialogue on how to spur innovation.

RESEARCH ARTICLE: Human apoE Isoforms Differentially Regulate Brain Amyloid- β Peptide Clearance

J. M. Castellano et al.

Human apoE4 increases the concentration of soluble amyloid- β in the brain by impairing its clearance.

RESEARCH ARTICLE: Rapamycin Reverses Cellular Phenotypes and Enhances Mutant Protein Clearance in Hutchinson-Gilford Progeria Syndrome Cells

K. Cao et al.

Shown previously to extend longevity in animals, the drug rapamycin might serve as a treatment for a human premature aging syndrome.

SCIENCE CAREERS

www.sciencereaders.org/career_magazine

Free Career Resources for Scientists

How to Avoid Retirement

L. Laursen

From changing roles to changing institutions, researchers approaching retirement age are finding ways to prolong their scientific careers.
http://scim.ag/avoiding_retirement

Taken for Granted: Creating Opportunities

B. L. Benderly

Two university-based jobs programs are helping to boost opportunities for scientists who are already trained.
http://scim.ag/TFG_Opportunities

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Science Careers Staff

Find everything you need to know about delivering oral scientific presentations (except the science), all in one place.

http://scim.ag/collection_presentations

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