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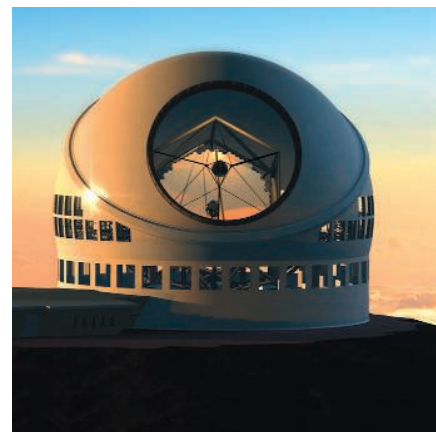
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- 539 Smallest Algae Thrive As the Arctic Ocean Freshens
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In the Arctic Ocean, phytoplankton cell sizes have decreased with warming temperatures and fresher surface waters.

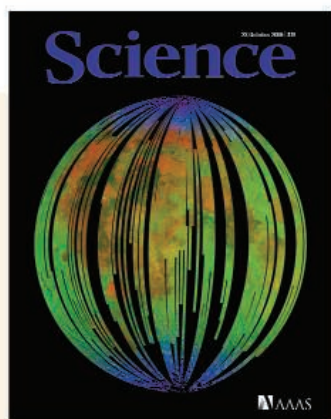
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COVER

A three-color mosaic derived from the Moon Mineralogy Mapper (M^3) near-infrared spectrometer. Orange and pink colors illustrate the distribution of iron-bearing minerals. Green represents the surface brightness at 2.4 micrometers. Blue indicates the presence of small amounts of surficial OH and H_2O that are most prominent at these viewing geometries at cooler, higher latitudes. See page 568.

Image: NASA/ISRO/Brown University/R. N. Clark, USGS

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P. J. Wittkopp et al.

Color-determining genes in flies show an ancestral polymorphism that contributes to variation, both within and between species.

544 RNAi in Budding Yeast

I. A. Drinnenberg et al.

Although the *Saccharomyces cerevisiae* lineage has lost RNA interference, the pathway can be restored by adding genes from *S. castellii*.

>> *Perspective p. 533*

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550 Probing the Magnetic Field of Light at Optical Frequencies

M. Burresi et al.

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>> *Perspective p. 529*553 Characterization of a Rhodium(I) σ -Methane Complex in Solution

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556 Isolation of a C5-Deprotonated Imidazolium, a Crystalline "Abnormal" N-Heterocyclic Carbene

E. Aldeco-Perez et al.

A stable cyclic molecule has been prepared with an unusually positioned divalent carbon.

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559 Carbenes As Catalysts for Transformations of Organometallic Iron Complexes

V. Lavallo and R. H. Grubbs

Carbenes that are useful for organic catalysis are shown to promote organometallic reactions as well.

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562 Detection of Adsorbed Water and Hydroxyl on the Moon

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565 Temporal and Spatial Variability of Lunar Hydration As Observed by the Deep Impact Spacecraft

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568 Character and Spatial Distribution of OH/H₂O on the Surface of the Moon Seen by M³ on Chandrayaan-1

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572 Smoothed Mutation Confers Resistance to a Hedgehog Pathway Inhibitor in Medulloblastoma

R. L. Yauch et al.

A mutation that prevents binding of a promising drug lead to its target protein confers resistance in a human brain tumor.

575 A Cdc20-APC Ubiquitin Signaling Pathway Regulates Presynaptic Differentiation

Y. Yang et al.

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578 Metagenome of a Versatile Chemolithoautotroph from Expanding Oceanic Dead Zones

D. A. Walsh et al.

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582 Pathogenesis of Chytridiomycosis, a Cause of Catastrophic Amphibian Declines

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585 Detection of an Infectious Retrovirus, XMRV, in Blood Cells of Patients with Chronic Fatigue Syndrome

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Two-thirds of a sample of 101 U.S. patients with chronic fatigue syndrome harbor an infectious retrovirus in their blood cells.

>> *Perspective p. 530*

589 Complete Reconstitution of a Highly Reducing Iterative Polyketide Synthase

S. M. Ma et al.

Reconstitution of catalytic function provides insight into how multifunctional enzymes synthesize important natural products.

592 PTP σ Is a Receptor for Chondroitin Sulfate Proteoglycan, an Inhibitor of Neural Regeneration

Y. Shen et al.

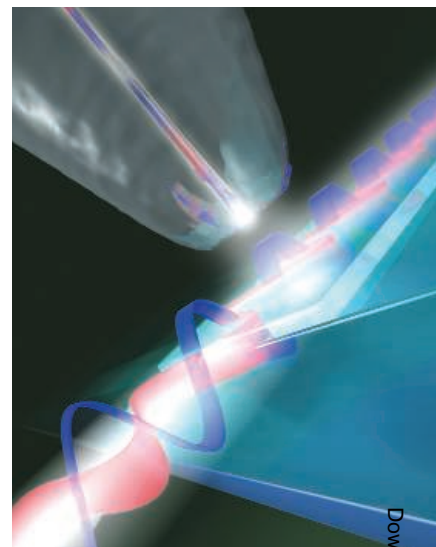
Mouse neurons that lack a receptor for inhibitory proteoglycans show improved regeneration.

596 Using Neural Measures of Economic Value to Solve the Public Goods Free-Rider Problem

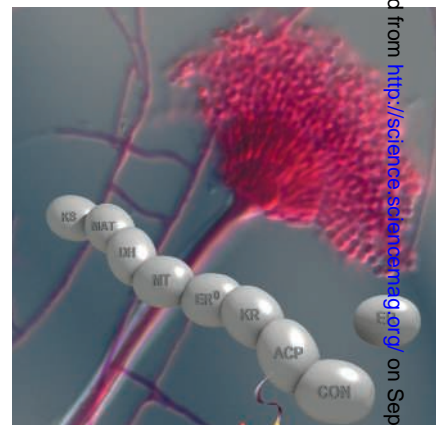
I. Krajbich et al.

Neuroimaging measures of individuals' valuation of public goods suggests a path to a coherent public goods economy.

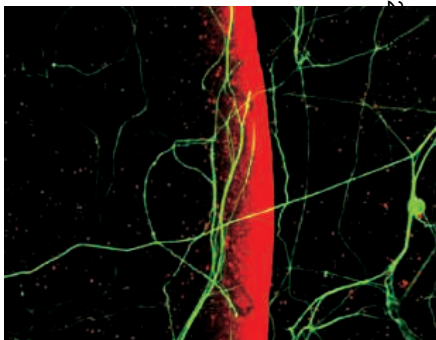
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Structural Mechanism of Abscisic Acid Binding and Signaling by Dimeric PYR1

N. Nishimura et al.

The plant hormone responsible for drought tolerance signals by inducing conformational changes in its dimeric protein receptor.
10.1126/science.1181829

Altered Heterochromatin Binding by a Hybrid Sterility Protein in *Drosophila* Sibling Species

J. J. Bayes and H. S. Malik

A male sterility protein localizes to evolutionarily dynamic loci within heterochromatin and leads to their decondensation.
10.1126/science.1181756

Planarian Hh Signaling Regulates Regeneration Polarity and Links Hh Pathway Evolution to Cilia

J. C. Rink et al.

Analysis of the Hedgehog signaling pathway in planaria suggests an ancestral association of this signaling pathway and cilia function.
10.1126/science.1178712

Indirect Emissions from Biofuels: How Important?

J. M. Melillo et al.

Land use changes associated with biofuel production are predicted to increase greenhouse gas emissions.
10.1126/science.1180251
>> *News story p. 516; Policy Forum p. 527*

Nanoplasmonic Probes of Catalytic Reactions

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Reactant concentrations can be measured as plasmon frequency shifts for model catalysts grown on nanoscale gold disks.
10.1126/science.1176593

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EDITORIAL GUIDE: Focus Issue—Addressing Complicated Questions in Neuroscience

N. R. Gough

Multiple approaches are needed to understand brain biology and pathology.

RESEARCH ARTICLE: A Noisy Paracrine Signal Determines the Cellular NF- κ B Response to Lipopolysaccharide

T. K. Lee et al.

A low concentration paracrine TNF- α signal contributes to the variability in NF- κ B activation dynamics in the response to lipopolysaccharide.

RESEARCH ARTICLE: Two Mechanistically and Temporally Distinct NF- κ B Activation Pathways in IL-1 Signaling

K. Yamazaki et al.

The cooperative activation of NF- κ B by two distinct pathways that diverge at TRAF6 critically contributes to the IL-1-dependent inflammatory response.

RESEARCH ARTICLE: STIM2 Regulates Capacitive Ca²⁺ Entry in Neurons and Plays a Key Role in Hypoxic Neuronal Cell Death

A. Berna-Erro et al.

Neurons lacking the calcium sensor STIM2 are protected from hypoxia-induced cell death.

PERSPECTIVE: Emerging Miniaturized Proteomic Technologies to Study Cell Signaling in Clinical Samples

T. S. Gujral and G. MacBeath

Assessing the state of signaling networks in limited quantity samples may facilitate personalized medical care.

PERSPECTIVE: Schizophrenia—The “BLOC” May Be in the Endosomes

P. V. Ryder and V. Faundez

Genetic polymorphisms that affect processes regulated by or participating in endosomal trafficking may increase susceptibility to schizophrenia.

REVIEW: G Protein–Coupled Receptors, Cholinergic Dysfunction, and A β Toxicity in Alzheimer’s Disease

A. Thathiah and B. De Strooper

β -amyloid may induce neurodegeneration by affecting G protein–coupled receptor signaling.

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Science Careers Staff

Find out how to get tenure, and what some people do when they don’t.

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An expert on tenure describes the best practices for getting tenure.

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A recently rejected physics professor rediscovers the pleasures of carrots and carpentry.

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COMMENTARY: What the Patient Should Order

R. D. Kush

Clinical information from the doctor’s office should be harnessed to inform health care decisions.

PERSPECTIVE: Computational Genetic Mapping in Mice—The Ship Has Sailed

M. Zheng et al.

Computational mapping can be used for discovery and repurposing of existing drugs.

RESEARCH ARTICLE: Radioprotection in Normal Tissue and Delayed Tumor Growth by Blockade of CD47 Signaling

J. Maxhimer et al.

Inhibition of a membrane receptor protects normal tissue from radiation injury and delays tumor growth.

RESEARCH ARTICLE: Slow Elimination of Multidrug-Resistant Tuberculosis

C. Dye and B. G. Williams

The spread of drug-resistant TB can be reversed through better treatment and diagnosis.

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