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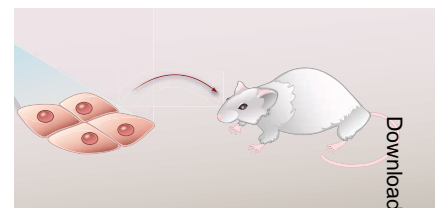
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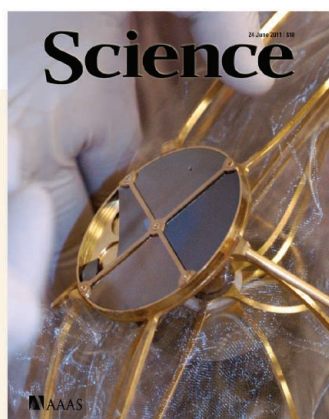


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COVER

The Genesis Concentrator target (6 centimeters in diameter), bearing atoms from the solar wind, is disentangled from its support frame and wire mesh following the crash of the sample return capsule in the Utah desert in 2004. Analyses of an unbroken silicon carbide quadrant (top) reveal the initial oxygen and nitrogen isotopic compositions of the solar system, which are distinctly different from terrestrial isotopic compositions. See pages 1528 and 1533.

Image: NASA Genesis Team

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Infants use statistical inference to decide what went wrong.
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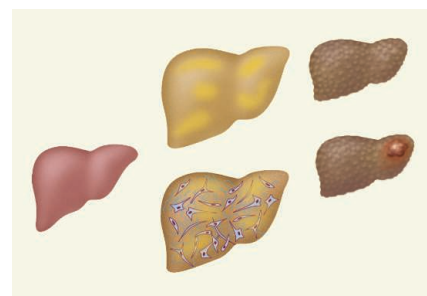
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- 1525 **Scale for the Phase Diagram of Quantum Chromodynamics**
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The temperature scale for the breakdown of protons and neutrons can be determined from high-energy ion collisions and calculations.
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- 1528 **The Oxygen Isotopic Composition of the Sun Inferred from Captured Solar Wind**
K. D. McKeegan et al.
The Sun is highly enriched in the most abundant isotope of oxygen, oxygen-16, relative to most other planetary materials.
- 1533 **A ¹⁵N-Poor Isotopic Composition for the Solar System As Shown by Genesis Solar Wind Samples**
B. Marty et al.
The solar atmosphere is about 40% enriched in the heavy nitrogen-15 isotope compared with the Sun and Jupiter.
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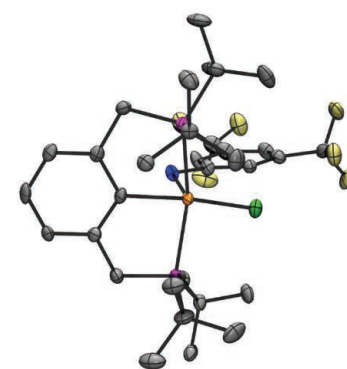
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- 1537 **Carbon-Based Supercapacitors Produced by Activation of Graphene**
Y. Zhu et al.
Activated microwave-exfoliated graphite oxide combined with an ionic liquid can be used to make an enhanced capacitor.
- 1541 **Disorder-Enhanced Transport in Photonic Quasicrystals**
L. Levi et al.
Optical interference in a photorefractive crystal is used to study light propagation in a controlled disordered system.
- 1545 **Net Oxidative Addition of C(sp³)-F Bonds to Iridium via Initial C-H Bond Activation**
J. Choi et al.
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- 1548 **Abiotic Pyrite Formation Produces a Large Fe Isotope Fractionation**
R. Guilbaud et al.
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- 1551 **Lévy Walks Evolve Through Interaction Between Movement and Environmental Complexity**
M. de Jager et al.
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- 1561 **Mutagenic Processing of Ribonucleotides in DNA by Yeast Topoisomerase I**
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- 1568 **Selective Attention from Voluntary Control of Neurons in Prefrontal Cortex**
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The activity of neurons with both visual and motor properties in the frontal eye field can be controlled voluntarily.
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Inducing sleep in flies reverses deficits in long-term memory caused by social enrichment.
- 1576 **Sleep and Synaptic Homeostasis: Structural Evidence in *Drosophila***
D. Bushey et al.
Flies' need for sleep depends on how many synapses are formed while awake.

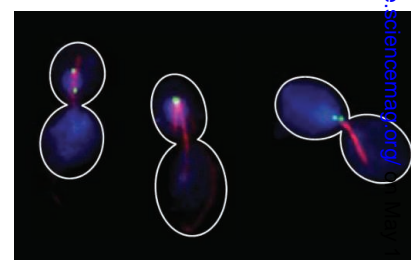
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The Mosaic of Surface Charge in Contact Electrification

H. T. Baytekin et al.

Electrification caused by rubbing two objects creates patches of positive and negative charge on both surfaces.

10.1126/science.1201512

Dinosaur Body Temperatures Determined from Isotopic (¹³C-¹⁸O) Ordering in Fossil Biominerals

R. A. Eagle et al.

Large dinosaurs had body temperatures similar to those of modern mammals and birds.

10.1126/science.1206196

>> [Science Podcast](#)

Self-Recognition in Social Amoebae Is Mediated by Allelic Pairs of *Tiger* Genes

S. Hirose et al.

Polymorphic receptors prevent cheats avoiding altruistic cell death in *Dictyostelium*.

10.1126/science.1203903

Organization of Intracellular Reactions with Rationally Designed RNA Assemblies

C. J. Delebecque et al.

Multidimensional RNA structures can act as scaffolds for the spatial organization of bacterial metabolism.

10.1126/science.1206938

Targeted Genome Editing Across Species Using ZFNs and TALENs

A. J. Wood et al.

Engineered nucleases target specific DNA sequences for gene disruption in nonmodel organisms.

10.1126/science.1207773

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Highlights From Our Daily News Coverage

Spying on a Silent Killer

A new imaging technique allows researchers to hear warning signs before a heart attack or stroke.

<http://scim.ag/silent-killer>

Wing Hairs Turn Bats Into Aerial Aces

Research into bat flight could inspire design of new types of aircraft.

<http://scim.ag/wing-hairs>

The Iceman's Last Meal

New details emerge about diet, eye color, and cavities of a 5000-year-old traveler.

<http://scim.ag/last-meal>

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The Signal Transduction Knowledge Environment

21 June issue: <http://scim.ag/ss062111>

RESEARCH RESOURCE: Comparative Proteomic Analysis Identifies a Role for SUMO in Protein Quality Control

M. H. Tatham et al.

Changes in cellular SUMOylation occur in response to the accumulation of misfolded proteins.

PRESENTATION: HIF-1 α Mediates Tumor Hypoxia to Confer a Perpetual Mesenchymal Phenotype for Malignant Progression

Y.-G. Yoo et al.

Hypoxia-induced genetic alternations induce epithelial-mesenchymal transition and tumor progression.

JOURNAL CLUB: Partners in Crime—Ubiquitin-Mediated Degradation and Autophagy

S. M. Srinam et al.

Toll-like receptor 4 signaling provides insights into the molecular mechanism of ubiquitin-dependent selective autophagy.

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Integrating Medicine and Science

22 June issue: <http://scim.ag/stm062211>

PERSPECTIVE: Broken Barriers—A New Take on Sepsis Pathogenesis

N. M. Goldenberg et al.

Leakiness of the endothelial barrier and the microvasculature are key determinants of sepsis.

MEETING REPORT: Leveraging Crowdsourcing to Facilitate the Discovery of New Medicines

T. C. Norman et al.

Empowering the collective brain trust to perform drug discovery in an open access environment may de-risk an inherently tricky endeavor.

RESEARCH ARTICLE: Dosage Thresholds for AAV2 and AAV8 Photoreceptor Gene Therapy in Monkey

L. H. Vandenberghe et al.

AAV2 and AAV8 viral vectors administered subretinally transduce the retinal pigment epithelium and photoreceptors in monkeys.

RESEARCH ARTICLE: The Role of Nogo and the Mitochondria—Endoplasmic Reticulum Unit in Pulmonary Hypertension

G. Sutendra et al.

PERSPECTIVE: Endoplasmic Reticulum Stress Enters a Nogo Zone

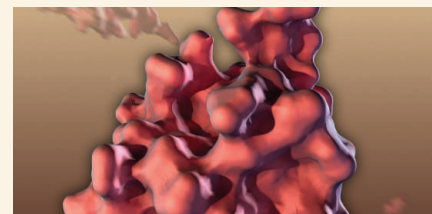
J. P. Muñoz and A. Zorzano

By regulating ER stress, the vascular remodeling protein Nogo-B mediates hypoxia-induced pulmonary arterial hypertension.

RESEARCH ARTICLE: Immunogenicity of the Tuberculosis Vaccine MVA85A Is Reduced by Coadministration with EPI Vaccines in a Randomized Controlled Trial in Gambian Infants

M. O. C. Ota et al.

Coadministration of tuberculosis vaccine with standard childhood vaccines may reduce its immunogenicity.



SCIENCE SIGNALING
SUMO, a ubiquitin-like protein.

SCIENCE CAREERS

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Mapping the Route to Retirement

V. Raper

The decision to retire has professional, financial, and psychosocial aspects that scientists need to plan for well in advance.

http://scim.ag/retirement_vraper

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A. Ruben

Our labs are science-based mini-societies—so why do we run them in the same arbitrary and bureaucratic way as the rest of the world?

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