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10.1126/science.1152747

Use of U.S. Croplands for Biofuels Increases Greenhouse Gases Through Emmissions from Land Use Change
T. Searchinger et al.
Converting forests and grasslands to biofuel crop production results in a net carbon flux to the atmosphere for decades despite any displacement of fossil fuel use.
10.1126/science.1151861

PLANT SCIENCE
TOPLESS Mediates Auxin-Dependent Transcriptional Repression During Arabidopsis Embryogenesis
H. Szemenyei, M. Hannon, J. A. Long
A transcriptional co-repressor is part of the protein complex that inhibits developmental gene activation in Arabidopsis until the growth hormone auxin triggers its degradation.
10.1126/science.1151461

NEUROSCIENCE
Synaptic Protein Degradation Underlies Destabilization of Retrieved Fear Memory
S.-H. Lee et al.
Upon recollection, mouse memories of fearful situations become labile, as postsynaptic proteins are degraded by proteosomes and are then reconsolidated via protein synthesis.
10.1126/science.1150541

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full text at www.sciencemag.org/cgi/content/full/319/5864/726c

Response to Comment on “Clustering by Passing Messages Between Data Points”
B. J. Frey and D. Dueck
full text at www.sciencemag.org/cgi/content/full/319/5864/726d

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**PHYSICS**

Observation of the Spin Hall Effect of Light via Weak Measurements

D. R. Killelea, V. L. Campbell, N. S. Shuman, A. L. Utz

Displacement of light at an air-glass interface depends on its polarization, showing that photons have a spin Hall effect comparable to that seen for electrons.  

**CHEMISTRY**

Bond-Selective Control of a Heterogeneously Catalyzed Reaction

A. L. Goodwin et al.

Like a lattice fence, a silver-based framework material expands greatly in one direction upon heating, while contracting even more in the orthogonal direction.

**BIOPHYSICS**

A Heme Export Protein Is Required for Red Blood Cell Differentiation and Iron Homeostasis

S. B. Keel et al.

A mouse cell-surface protein exports excess heme, which is toxic when free in the cytoplasm, ensuring normal red blood cell maturation and systemic iron balance.

**ECOLOGY**

Direct and Indirect Effects of Resource Quality on Food Web Structure

T. Bukovinszky, F. J. F. van Veen, Y. Jongema, M. Dicke

Food webs that contain either Brussels sprouts or a wild Brassica relative have surprisingly large differences in structure and complexity, extending to three trophic levels.

**MATERIALS SCIENCE**

Colossal Positive and Negative Thermal Expansion in the Framework Material $\text{Ag}_2[\text{Co(CN)}_4]$  

A. L. Belonoshko et al.

Simulations show that at high pressures sound waves travel through the body-centered cubic structure of iron faster in one direction, explaining seismic data on the inner core.

**CLIMATE CHANGE**

The Spatial Pattern and Mechanisms of Heat-Content Change in the North Atlantic

M. S. Lozier et al.

Warming and cooling in different parts of the North Atlantic since 1950 reflects variable atmospheric circulation, complicating understanding of anthropogenic changes.

**MOLECULAR BIOLOGY**

Biomechanical Energy Harvesting: Generating Electricity During Walking with Minimal User Effort

J. M. Donelan et al.

A knee-mounted device can generate several watts of power at the end of each leg swing in a process similar to regenerative braking in hybrid cars.

**BIOCHEMISTRY**

Three-Dimensional Super-Resolution Imaging by Stochastic Optical Reconstruction Microscopy

B. Huang, W. Wang, M. Bates, X. Zhuang

Three-dimensional fluorescence images of cellular structures in fixed cells are realized at 20- to 30-nanometer lateral and 50-nanometer axial resolution, without scanning.

**GENETICS**

An Association Between the Kinship and Fertility of Human Couples

A. Helgason et al.

The extensive genealogies of the Icelandic people show that couples who are 3rd or 4th cousins have more children and grandchildren than couples whose relationships are more or less distant.

**IMMUNOLOGY**

Repression of the Transcription Factor Th-POK by Runx Complexes in Cytotoxic T Cell Development

R. Krishnakumar et al.

A key cell-fate decision—to become a cytotoxic rather than a helper T cell—is controlled by repression of the helper T cell transcription factor by a second transcription factor.

**MEDICINE**

A Heme Export Protein Is Required for Red Blood Cell Differentiation and Iron Homeostasis

S. B. Keel et al.

A mouse cell-surface protein exports excess heme, which is toxic when free in the cytoplasm, ensuring normal red blood cell maturation and systemic iron balance.
Team Uncovers New Evidence of Recent Human Evolution
Adaptation to disparate environments resulted in mutations related to obesity and diabetes.

Don’t It Make Your Brown Eyes Blue?
Researchers locate genetic change that leads to baby blues, and it’s not where they expected.

Move Over Beavers, Here Come Salmon
The big fish don’t just swim upstream—they shape the stream.

PERSPECTIVE: Novel Roles for the NF-κB Signaling Pathway in Regulating Neuronal Function
M. C. Boersma and M. K. Meffert
Components of the NF-κB pathway may use multiple mechanisms to influence synaptic plasticity, learning, and memory.

PERSPECTIVE: Exosomes Secreted by Bacterially Infected Macrophages Are Proinflammatory
H. C. O’Neill and B. J. C. Quah
The release of bacterial components in vesicles secreted by infected macrophages helps promote inflammation.

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E. Pain
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A Gift That Keeps On Giving
S. Webb
An industry mentor helped physicist Joan Hoffmann navigate graduate school and launch her career.

Mentoring Opposites
C. Wald
A mentor and student turned their differences into strengths as they became scientific collaborators.

From the Archives: The Commandments of Cover Letter Creation
P. Fiske
A good cover letter highlights your qualifications and guides readers through the most important parts of your work history.

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