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Carbon Capture and Sequestration

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>> *Science Podcast*

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reviewed by R. S. Eisenberg

1626 Untangling the Double Helix

J. C. Wang, reviewed by A. Mondragón

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1627 Revising the AP Biology Curriculum

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1630 A New Departure in Fluorination Chemistry

V. Gouverneur

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COVER

The Hellisheidi geothermal power project in southwestern Iceland, site of a pilot study on the feasibility of sequestration of carbon dioxide in basaltic rocks. Here, carbon dioxide released from the hot water that powers the facility is dissolved in cooling water and injected below ground to a depth of 300 to 800 meters, where it can react with basalt to form new, stable minerals. See the special section beginning on page 1641.

Photo: Haraldur Stefansson/Alamy

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1634 Simulating Multifunctional Structures

S. R. Phillpot and S. B. Sinnott

1635 Evolving Cell Signals

M. O. Collins

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BREVIA

1660 Oceanic Spawning Migration of the European Eel (*Anguilla anguilla*)

K. Aarestrup et al.

Satellite tracking technology has allowed scientists to map part of the migration route of the European eel.

RESEARCH ARTICLE

1661 Formation of ArF from LPdAr(F): Catalytic Conversion of Aryl Triflates to Aryl Fluorides

D. A. Watson et al.

A catalyst enables versatile carbon-fluorine bond formation using simple fluoride salts.

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REPORTS

1665 High-Detectivity Polymer Photodetectors with Spectral Response from 300 nm to 1450 nm

X. Gong et al.

Well-designed polymer photodetectors show performance comparable with the best inorganic devices.

1668 Reversible Reactions of Ethylene with Distannynes Under Ambient Conditions

Y. Peng et al.

Ethylene reacts reversibly with triply bonded tin, contrasting with its reactivity toward carbon triple bonds.

>> Perspective p. 1631

1670 Coordinatively Unsaturated Al³⁺ Centers as Binding Sites for Active Catalyst Phases of Platinum on γ -Al₂O₃

J. H. Kwak et al.

A combination of high-resolution spectroscopy and microscopy reveals the details of platinum binding to aluminum oxide.

1674 Distribution of Mid-Latitude Ground Ice on Mars from New Impact Craters

S. Byrne et al.

Observations of ground ice exposed by recent impact craters probe the composition of the upper layers of the surface of Mars.

1677 Holocene Glacier Fluctuations in the Peruvian Andes Indicate Northern Climate Linkages

J. M. Licciardi et al.

Glacial advances in the southern Peruvian Andes during the Holocene are correlated with the climate of the North Atlantic region.

1680 Chloroquine Transport via the Malaria Parasite's Chloroquine Resistance Transporter

R. E. Martin et al.

Chloroquine resistance in *Plasmodium falciparum* is due to the direct export of the drug via a mutant transporter protein.

1682 Global Analysis of Cdk1 Substrate Phosphorylation Sites Provides Insights into Evolution

L. J. Holt et al.

The range of sites phosphorylated by a protein kinase in yeast provides clues to the evolution of such regulatory mechanisms.

1686 Positive Selection of Tyrosine Loss in Metazoan Evolution

C. S. H. Tan et al.

Evolution of tyrosine phosphorylation as a signaling mechanism may have coincided with loss of tyrosine residues to avoid noise.

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1688 Evolution of a Novel Phenolic Pathway for Pollen Development

M. Matsuno et al.

Gene copying and positive Darwinian selection promoted the emergence of a phenolic pathway in Brassicaceae.

1693 Creating Bacterial Strains from Genomes That Have Been Cloned and Engineered in Yeast

C. Lartigue et al.

A *Mycoplasma mycoides* genome was engineered in yeast and then transplanted into *M. capricolum* cells to produce a new strain.

1696 On Universality in Human Correspondence Activity

R. D. Malmgren et al.

Affinity toward a particular life-style affects the communication patterns between people.

>> Science Podcast

1700 Antennal Circadian Clocks Coordinate Sun Compass Orientation in Migratory Monarch Butterflies

C. Merlin et al.

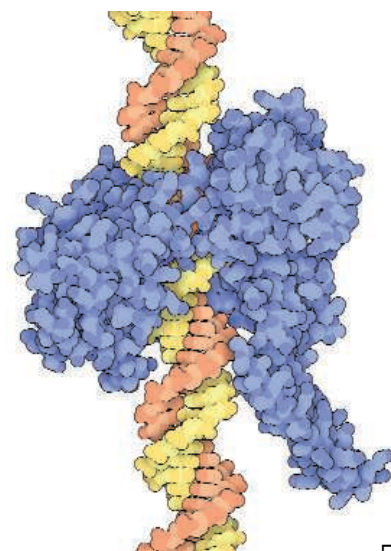
Monarch butterfly antennae contain the timing mechanism for time-compensated Sun compass orientation.

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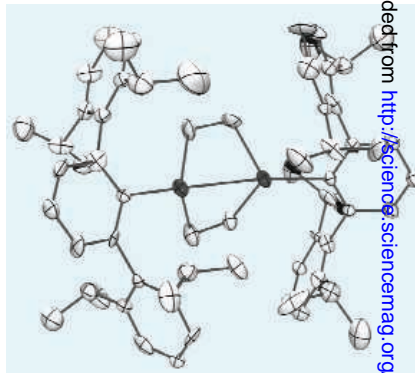
1705 Optimizing Influenza Vaccine Distribution

J. Medlock and A. P. Galvani

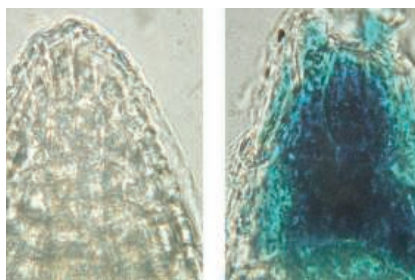
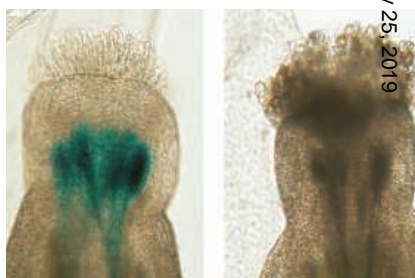
Age-related transmission patterns should be incorporated into vaccine distribution policy to minimize the impact of epidemics.



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SCIENCEONLINE

SCIENCEEXPRESS

www.sciencexpress.org

Amyloid- β Dynamics Are Regulated by Orexin and the Sleep-Wake Cycle

J.-E. Kang et al.

Sleep patterns can influence amyloid plaque formation in a mouse model of Alzheimer's disease.

10.1126/science.1180962

Detection of Gamma Rays from a Starburst Galaxy

F. Acero et al.

Detection of our nearest starburst galaxy at very high energies confirms this galaxy-type as a new class of gamma-ray emitter.

10.1126/science.1178826

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

C. M. Pieters et al.

10.1126/science.1178658

Detection of Adsorbed Water and Hydroxyl on the Moon

R. N. Clark

10.1126/science.1178105

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

J. M. Sunshine et al.

Space-based spectroscopic measurements provide evidence for water or hydroxyl (OH) on the surface of the Moon.

10.1126/science.1179788

A Lunar Waterworld

P. G. Lucey

10.1126/science.1181471

TECHNICALCOMMENTS

Comment on "Infants' Perseverative Search Errors Are Induced by Pragmatic Misinterpretation"

J. P. Spencer et al.

full text at www.sciencemag.org/cgi/content/full/325/5948/1624-a

Response to Comment on "Infants' Perseverative Search Errors Are Induced by Pragmatic Misinterpretation"

J. Topál et al.

full text at www.sciencemag.org/cgi/content/full/325/5948/1624-b

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Highlights From Our Daily News Coverage

Antplant Ants Are Never Satisfied

Tree-dwelling ants expand their territory beyond hospitable trees.

And the Solar System's Coldest Spot Is ...

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Gene Therapy Gives Monkeys Color Vision

Finding may point to future treatments for human colorblindness.

SCIENCE SIGNALING

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RESEARCH ARTICLE: The Single Transmembrane Domains of Human Receptor Tyrosine Kinases Encode Self-Interactions

C. Finger et al.

The transmembrane domain of any of the 58 human receptor tyrosine kinases is sufficient to mediate dimerization.

RESEARCH ARTICLE: MSK2 Inhibits p53 Activity in the Absence of Stress

S. Llanos et al.

The kinase MSK2 inhibits p53 transcriptional activity at a subset of promoters through a kinase-independent mechanism.

PERSPECTIVE: Integrin Proteomes Reveal a New Guide for Cell Motility

E. H. J. Danen

A proteomics analysis of integrin-associated complexes establishes an unexpected connection to cell migration.

PERSPECTIVE: Human-Specific Genes May Offer a Unique Window into Human Cell Signaling

P. D. Stahl and M. J. Wainszelbaum

Analysis of human-specific genes may reveal, at the molecular level, what makes humans human.

GLOSSARY

Find out what APR, NHEJ, and SLAM mean in the world of cell signaling.

SCIENCE CAREERS

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Special Feature: Careers in Humanitarian Science

E. Pain

Scientists are applying their skills to relieve hunger, disease, and human-rights violations.

Serving Human Rights and Humanitarian Needs

E. Pain

Three passionate scientists describe their careers dealing with human rights.

Helping Feed the World

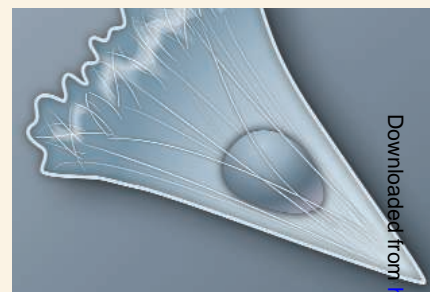
S. McLoone

Scientists are helping to increase and maintain food supplies where food is scarce.



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Migrating cell with lamellipodium.

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Download the 25 September *Science* Podcast to hear about challenges to carbon capture and storage, human correspondence patterns, linking nutrition to violent behavior, and more.

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