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GENETICS

Species-Specific Transcription in Mice Carrying Human Chromosome 21
M. D. Wilson et al.
An aneuploid mouse carrying a human chromosome shows that genetic sequence can dominate epigenetic, cellular, and organismal effects in determining transcriptional regulation and gene expression.

10.1126/science.1160930

CLIMATE CHANGE

Atmospheric CO₂ and Climate on Millennial Time Scales During the Last Glacial Period
J. Ahn and E. J. Brook
A detailed gas record from the Byrd ice core from 90,000 to 20,000 years ago shows that warming episodes tracked high CO₂ levels in Antarctica but lagged by several thousands of years in Greenland.

10.1126/science.1160832

TECHNICAL COMMENT ABSTRACTS

ECOLOGY
Comment on "A Global Map of Human Impact on Marine Ecosystems"
M. R. Heath
full text at www.sciencemag.org/cgi/content/full/321/5895/1446b

Response to Comment on "A Global Map of Human Impact on Marine Ecosystems"
K. A. Selkoe et al.
full text at www.sciencemag.org/cgi/content/full/321/5895/1446c

BREVIA

GENETICS
A Mutation in Hairless Dogs Implicates FOXI3 in Ectodermal Development
C. Drögemüller et al.
Mutations in a transcription factor gene involved in ectodermal development cause a lack of hair and abnormal teeth in Chinese Crested, Mexican, and Peruvian hairless dogs.

PHYSICS
Enhanced Sensitivity of Photodetection via Quantum Illumination
S. Lloyd
Quantum-mechanically entangled light, in which one photon is kept as a reference, can exponentially improve the imaging of an object, as compared with unentangled illumination. >> News story p. 1433

COMPUTER SCIENCE
reCAPTCHA: Human-Based Character Recognition via Web Security Measures
L. von Ahn et al.
A security system that relies on the superior performance of humans in comparison to computers in reading distorted text can be harnessed for digitized scanned documents.

MATERIALS SCIENCE
A Rubberlike Stretchable Active Matrix Using Elastic Conductors
T. Sekitani et al.
A carbon nanotube–polymer film containing organic transistors and coated with silicon rubber can maintain its electrical properties while being stretched up to 70 percent.
Podcast

Tracheal Remodeling

V. Ramachandran and X. Chen

Exoribonucleases in Degradation of microRNAs by a Family of MOLECULAR BIOLOGY

N. Li and J. J. DiCarlo

Invariant Object Representation in Visual Cortex NEUROSCIENCE

J.-H. Mao

Cooperates with PTEN in Tumor Suppression FBXW7 Targets mTOR for Degradation and Cooperates with PTEN in Tumor Suppression CELL BIOLOGY

S. H. Gerber

Synaptic Vesicle Fusion CELL BIOLOGY

Drosophila Tracheal Remodeling PLANETARY SCIENCE

D. L. Finke and W. E. Snyder

Niche Partitioning Increases Resource Exploitation by Diverse Communities ECOLOGY

L. Brusatte, M. J. Benton, M. Ruta, G. T. Lloyd

Superiority, Competition, and Opportunism in the Evolutionary Radiation of Dinosaurs PALEONTOLOGY

S. L. Brusatte

Satellite data show that in the tropics, heavy rain events have increased in warmer months and decreased in colder months, more than predicted by climate models.

Postseismic Relaxation Along the San Andreas Fault at Parkfield from Continuous Seismological Observations GEOPHYSICS

R. P. Allan and B. J. Soden

When fruit flies metamorphose from larvae, a new trachea forms both from undifferentiated cells of the imaginal disc and differentiated cells that re-enter the cell cycle.

Activation of Aldehyde Dehydrogenase-2 Reduces Ischemic Damage to the Heart MEDICINE

C.-H. Chen et al.

A compound that activates the mitochondrial enzyme aldehyde dehydrogenase-2 reduces the extent of heart damage in a rodent model of heart attack.

Atmospheric Warming and the Amplification of Precipitation Extremes ATMOSPHERIC SCIENCE

R. P. Allan and B. J. Soden

During their early radiation, dinosaur morphology evolved at comparable rates to that of competing archosaurs, implying that opportunity, not superiority, influences their success.

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Dual Origin of Tissue-Specific Progenitor Cells in Drosophila Tracheal Remodeling DEVELOPMENTAL BIOLOGY

M. Weaver and M. A. Krasnow

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Evolutionary Radiation of Dinosaurs PALEONTOLOGY

S. L. Brusatte

A tumor suppressor is shown to control the degradation of a central protein regulator of cell proliferation.

Unsupervised Natural Experience Rapidly Alters Invariant Object Representation in Visual Cortex NEUROSCIENCE

N. Li and J. J. DiCarlo

Neurons in the most complex area of the brain’s visual cortex can respond to a particular object in any orientation by rapidly learning to associate multiple views of that object.

Conformational Switch of Syntaxin-1 Controls Synaptic Vesicle Fusion CELL BIOLOGY

A tumor suppressor is shown to control the degradation of a central protein regulator of cell proliferation.

Dehydrogenase-2 reduces the extent of heart damage in a rodent model of heart attack.

The synaptic vesicle protein that mediates membrane fusion during exocytosis also regulates the rate and extent of this process by controlling vesicle tethering.

Degradation of microRNAs by a Family of Exoribonucleases in Arabidopsis MOLECULAR BIOLOGY

V. Ramachandran and X. Chen

A class of nucleases specific for short single-stranded RNAs is found.

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F. Brenguier

Correlating 5 years of seismic noise among nearby receivers reveals subtle seismic velocity signals reflecting changes in the properties of the San Andreas fault at Parkfield.

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A class of nucleases specific for short single-stranded RNAs is found to degrade microRNAs in Arabidopsis; their mutation results in numerous developmental defects.
The phosphoinositide 3-kinase p110β subunit has noncatalytic functions; its catalytic activity is pertinent to both diabetes and cancer.

**PERSPECTIVE: Smad Signaling Dynamics—Insights from a Parsimonious Model**
H. Shankaran and H. S. Wiley
Computational modeling of protein localization dynamics yields new information about Smad signaling.

**GLOSSARY**
Find out what Kir, Vg1, and YAP mean in the world of cell signaling.