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Photo illustration: Nayomi Kevitiyagala (image: Grand Tour/Corbis)

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A. Ninfo et al.

Aerial mapping during an extreme drought has revealed the detailed plan of a major Roman city in the Venice lagoon.

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B. Worm et al.

Catch restrictions, gear modification, and closed areas are helping to rebuild overexploited marine ecosystems.

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## 585 Pre-Target Axon Sorting Establishes the Neural Map Topography

T. Imai et al.

The mouse olfactory topographic neural map is self-organized by interactions between axons, not directed by the target.

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## 590 Grain Boundary Defect Elimination in a Zeolite Membrane by Rapid Thermal Processing

J. Choi et al.

A reduction in the formation of defects in silicalite-1 zeolite membranes improves their isomer separation capabilities.

## 594 Ultrasmooth Patterned Metals for Plasmonics and Metamaterials

P. Nagpal et al.

Films with enhanced surface-plasmon propagation may find use in sensing and communications devices.

## 597 Probing Spin-Charge Separation in a Tomonaga-Luttinger Liquid

Y. Jompol et al.

Electronic spin and charge respond differently during tunneling between low-dimensional electron systems.

## 601 The Formation of Population III Binaries from Cosmological Initial Conditions

M. J. Turk et al.

Simulations show that binary systems are likely to exist among the first generation of stars.

## 605 Water and the Oxidation State of Subduction Zone Magmas

K. A. Kelley and E. Cottrell

Oxidation of Earth's mantle at subduction zones is caused by fluids released from the melting of subducting plates.

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## 607 The cAMP Sensor Epac2 Is a Direct Target of Antidiabetic Sulfonylurea Drugs

C.-L. Zhang et al.

A drug used to enhance insulin secretion in diabetes has a previously unrecognized protein target.

## 611 Flexible Learning of Multiple Speech Structures in Bilingual Infants

Á. M. Kovács and J. Mehler

Exposure to two languages facilitates the development of a more flexible associative learning capacity.

## 612 Identification of Splenic Reservoir Monocytes and Their Deployment to Inflammatory Sites

F. K. Swirski et al.

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E. Slack et al.

Mouse immune systems interact to ensure tolerance to nonpathogenic bacteria in the gut.

## 621 Chronic Stress Causes Frontostriatal Reorganization and Affects Decision-Making

E. Dias-Ferreira et al.

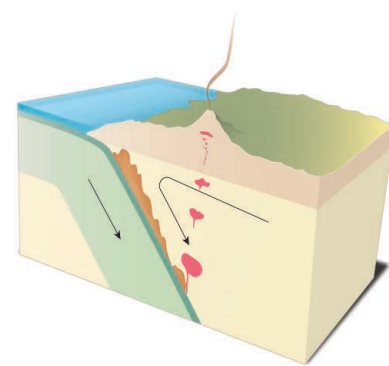
Chronic stress alters brain neural circuits and affects the ability of animals to perform actions based on their consequences.

## 626 Nucleosomal Fluctuations Govern the Transcription Dynamics of RNA Polymerase II

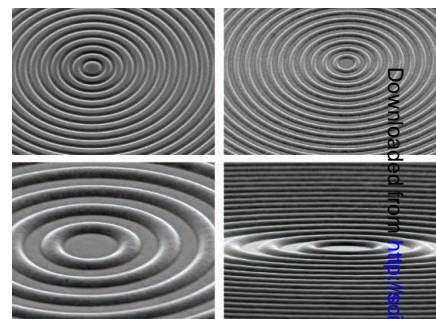
C. Hodges et al.

RNA polymerase acts as a molecular ratchet to force its way through nucleosome-infested DNA.

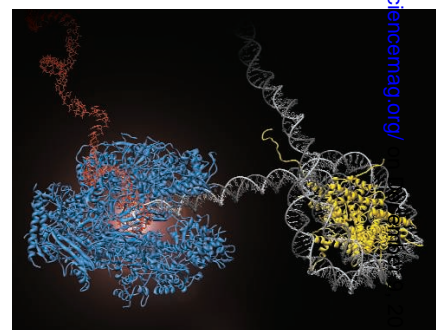
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## SCIENCEONLINE

## SCIENCEEXPRESS

[www.sciencexpress.org](http://www.sciencexpress.org)

### Unprecedented Restoration of a Native Oyster Metapopulation

*D. M. Schulte et al.*

The height of oyster reefs above the river bed promotes their restoration in the Chesapeake Bay.  
10.1126/science.1176516

>> *News story p. 525; Restoration Ecology section p. 555*

### Enhancement of Biodiversity and Ecosystem Services by Ecological Restoration: a Meta-Analysis

*J. M. Rey Benayas et al.*

Restoration, biodiversity, and ecosystem services are positively linked in a wide range of ecosystem types across the globe.  
10.1126/science.1172460

>> *Restoration Ecology section p. 555; Science Podcast*

### Common Regulatory Variation Impacts Gene Expression in a Cell Type–Dependent Manner

*A. S. Dimas et al.*

Genetic variation in regulatory elements among humans affects gene expression in a tissue specific manner.  
10.1126/science.1174148

### Reassessing the Source of Long-Period Comets

*N. A. Kaib and T. Quinn*

Numerical simulations show that the inner Oort Cloud is a major source of long-period comets that cross Earth's orbit.  
10.1126/science.1172676

### Barcoding of Plants and Fungi

*M. W. Chase and M. F. Fay*

10.1126/science.1176906

>> *News story p. 526; Restoration Ecology section p. 555*

## TECHNICALCOMMENTS

### Comment on "Remeasuring the Double Helix"

*N. B. Becker and R. Everaers*

full text at [www.sciencemag.org/cgi/content/full/325/5940/538-b](http://www.sciencemag.org/cgi/content/full/325/5940/538-b)

### Response to Comment on "Remeasuring the Double Helix"

*R. S. Mathew-Fenn et al.*

full text at [www.sciencemag.org/cgi/content/full/325/5940/538-c](http://www.sciencemag.org/cgi/content/full/325/5940/538-c)

## SCIENCENOW

[www.sciencenow.org](http://www.sciencenow.org)

Highlights From Our Daily News Coverage

### A 'Cloaking Device' for Earthquakes

Plastic rings could make buildings invisible to quake waves.

### New Zealand Tree Stuck in a Time Warp

Plant still harbors adaptations that protected it from a long-dead foe.

### Catching a Giant Wave

New insights into tsunami behavior may help researchers better track them with radar.

## SCIENCESIGNALING

[www.sciencesignaling.org](http://www.sciencesignaling.org)

The Signal Transduction Knowledge Environment

### EDITORIAL GUIDE: Unraveling Signaling Complexity

*N. R. Gough and J. F. Foley*

Dynamics adds to the complexity of signaling networks.

### RESEARCH ARTICLE: Cell Type–Specific Importance of Ras–c-Raf Complex Association Rate Constants for MAPK Signaling

*C. Kiel and L. Serrano*

Ras–c-Raf association rates affect downstream signaling in the absence of negative feedback but not in its presence.

### RESEARCH ARTICLE: Comparative Analysis Reveals Conserved Protein Phosphorylation Networks Implicated in Multiple Diseases

*C. S. H. Tan et al.*

Comparing the human phosphoproteome to that of flies, worms, and yeast reveals insights into evolution and disease.

### RESEARCH ARTICLE: Integrating Proteomic, Transcriptional, and Interactome Data Reveals Hidden Components of Signaling and Regulatory Networks

*S.-S. C. Huang and E. Fraenkel*

Analysis of multiple "omic" data sets with a prize-collecting Steiner tree algorithm reveals components of signaling networks that are not obvious by analyzing the data individually.

### PERSPECTIVE: Understanding Modularity in Molecular Networks Requires Dynamics

*R. P. Alexander et al.*

Relating structure and dynamics of molecular networks remains very challenging.

### PERSPECTIVE: Proteomic Revelation—SUMO Changes Partners When the Heat Is On

*K. Flick and P. Kaiser*

A system-level view of SUMOylation dynamics shows the importance of SUMOylation to the heat shock response.

### PERSPECTIVE: The Complexity of Cell Signaling and the Need for a New Mechanics

*W. S. Hlavacek and J. R. Faeder*

Studies that make sense of protein networks provide approaches to cope with complex signaling pathways.

### PERSPECTIVE: Dynamic Advances in NF- $\kappa$ B Signaling Analysis

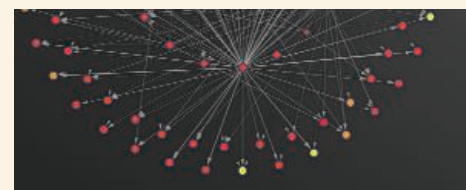
*T. Kobayashi and R. Kageyama*

Cytokine stimulation of cells at different time intervals produces distinct patterns of NF- $\kappa$ B–dependent gene transcription.

## PODCAST

*M. B. Yaffe and A. M. VanHook*

*Science Signaling's* Chief Scientific Editor discusses complexity in signaling networks.



SCIENCESIGNALING

Kinase-substrate network.

## SCIENCECAREERS

[www.sciencereers.org/career\\_magazine](http://www.sciencereers.org/career_magazine)

Free Career Resources for Scientists

### Perspective: How to Succeed in Big Science and Still Get Tenure

*V. McGovern*

You need to show that you are a serious scientist, separate from your work group.

### Independent Postdocs: Early Autonomy

*E. Pain*

Demonstrate your independence by negotiating with advisers, seeking individual fellowships, or obtaining a junior-PI position.

### Independent Postdocs: Resources

*E. Pain*

Here is a list of grants, fellowships, and junior-leader positions for postdocs in Europe and the United States.

## SCIENCEPODCAST

[www.sciencemag.org/multimedia/podcast](http://www.sciencemag.org/multimedia/podcast)

Free Weekly Show

Download the 31 July *Science* Podcast to hear about assessing ecological restoration, rethinking graduate student funding, science in Venezuela, and more.

## ORIGINSBLOG

[blogs.sciencemag.org/origins](http://blogs.sciencemag.org/origins)

A History of Beginnings

## SCIENCEINSIDER

[blogs.sciencemag.org/scienceinsider](http://blogs.sciencemag.org/scienceinsider)

Science Policy News and Analysis

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