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## COVER

Corals such as this 150-million-year-old colony of *Thecosmilia trichotoma* (with oyster *Actinostreon* attached) from southern Germany formed reefs during most of the Phanerozoic eon. These reefs harbored tremendous biodiversity that was subsequently exported to non-reef habitats. See page 196.

*Photo: Antje Dittmann and Carola Radke/Museum für Naturkunde, Berlin*

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Phosphorylation of the chromatin protein histone H2A plays a critical role in chromosome segregation during cell division.  
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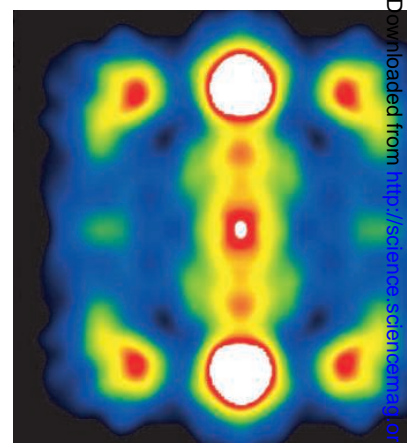
- 177 Quantum Criticality in an Ising Chain: Experimental Evidence for Emergent  $E_8$  Symmetry  
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A long-predicted hidden symmetry in spin ordering has been observed experimentally at temperatures near absolute zero.
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- 190 E-Type Asteroid (2867) Steins as Imaged by OSIRIS on Board Rosetta  
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- 193 Iron Partitioning and Density Changes of Pyrolite in Earth's Lower Mantle  
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Sequence variations in an adrenergic receptor gene cause reduced insulin secretion and contribute to type 2 diabetes.

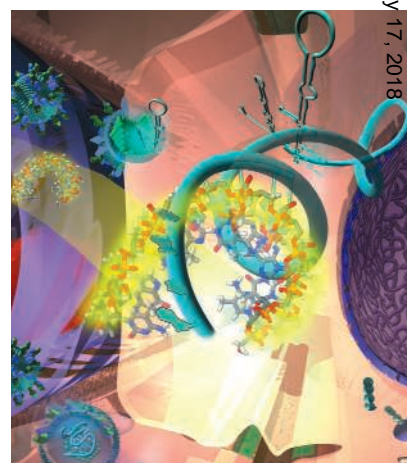
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## SCIENCEONLINE

## SCIENCEEXPRESS

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

**Kepler Planet-Detection Mission:  
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*W. J. Borucki et al.*

Initial observations confirm the existence of planets with densities lower than those predicted for gas giant planets.

10.1126/science.1185402

**Gamma-Ray Emission from the Shell  
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by the Fermi LAT**

*A. A. Abdo et al.*

Satellite observations suggest that protons are accelerated in the shell of a supernova remnant.

10.1126/science.1182787

**A Composite of Multiple Signals Distinguishes  
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Combining statistical methods detects signals of selection with increased sensitivity and a lower false-positive rate.

10.1126/science.1183863

**Axon Extension Occurs Independently  
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*M. Stiess et al.*

Neuronal polarization and axon regeneration depend on decentralized microtubule assembly rather than a functional centrosome.

10.1126/science.1182179

## SCIENCENOW

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From Styrofoam to Ice**

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## SCIENCE SIGNALING

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## EDITORIAL GUIDE: 2009—

Signaling Breakthroughs of the Year

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The signaling breakthroughs of 2009 emphasize the importance of looking beyond linear signaling pathways.

**RESEARCH ARTICLE: Impaired  $\alpha_{IIb}\beta_3$  Integrin  
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In the absence of PLD1, platelets do not form stable aggregates under high shear conditions.

**PERSPECTIVE: New Endogenous Regulators  
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## PODCAST

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## SCIENCE CAREERS

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*B. L. Benderly*

A postdoc's new company wins one of the 37 coveted first-round ARPA-E grants.

**Generating Science and Public Interest**

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Portuguese cellular biologist Mónica Bettencourt Dias sees promoting science communication as an integral part of her job.

**MySciNet: Sell Yourself—Refining the Personal  
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A career adviser offers tips on writing a critical piece of your graduate school application.

## SCIENCE TRANSLATIONAL MEDICINE

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**COMMENTARY: Biotechnology—  
Delivering on the Promise**

*J. C. Greenwood*

Biotechnology offers concrete hope for biomedical innovation.

**PERSPECTIVE: Antisense Gets a Grip  
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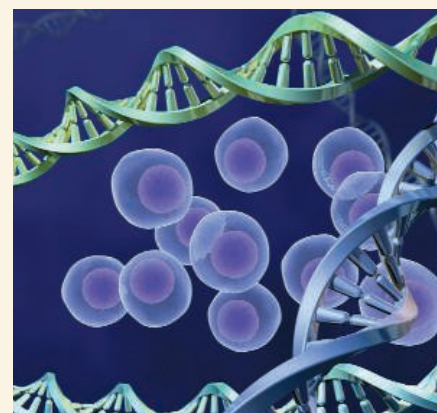
*A. D. Branch and C. M. Rice*

MicroRNAs may serve as prime targets for new life-saving therapies for patients with liver disease.

**RESEARCH ARTICLE: Modeling an Anti-Amyloid  
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*V. W. Chow et al.*

Simultaneous reduction of two enzymes involved in Alzheimer's disease ameliorates symptoms in aged mice.



**SCIENCE TRANSLATIONAL MEDICINE**  
Policy changes that buoy biotechnology.

**RESEARCH ARTICLE: Elafin Is a Biomarker  
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*S. Paczesny et al.*

Plasma elafin levels correlate with graft versus host disease of the skin and long-term survival.

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**327 (5962)**

*Science* **327** (5962), 123-221.

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