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## COVER

Substances deposited by a mother bird into her eggs influence how intensely her offspring beg for food after hatching. In canaries, these substances are effectively a prenatal signal of parental generosity. In contrast to the common assumption, they function primarily to serve the evolutionary interests of the offspring rather than the mother. See page 1373.

Photo: *Fernando Trabanco*

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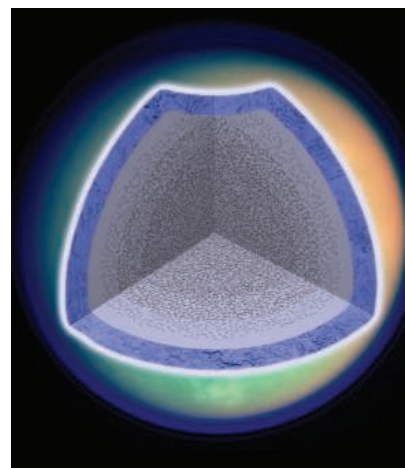
- 1345 Identification of a Primary Target of Thalidomide Teratogenicity  
*T. Ito et al.*  
Thalidomide exerts its damaging effects by binding to cereblon and blocking its activity in limb development.

## REPORTS

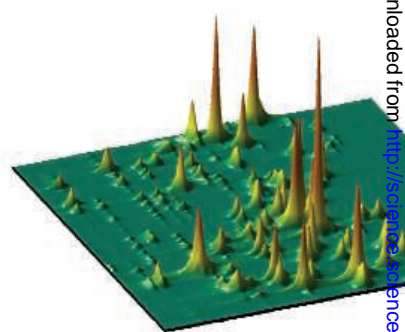
- 1350 Variations in the Sun's Meridional Flow over a Solar Cycle  
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- 1352 Cavity Quantum Electrodynamics with Anderson-Localized Modes  
*L. Sapienza et al.*  
Optical scattering is used to induce quantum coupling between light and an artificial atom.  
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- 1355 Light-Controlled Self-Assembly of Semiconductor Nanoparticles into Twisted Ribbons  
*S. Srivastava et al.*  
The photooxidation of cadmium sulfide nanoparticles within cadmium telluride nanoparticle ribbons causes surface stresses that lead to twisting.
- 1359 The Near-Tip Fields of Fast Cracks  
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The linear and nonlinear elastic responses near a growing crack tip can reveal how materials fail.
- 1363 Imaging Local Electrochemical Current via Surface Plasmon Resonance  
*X. Shan et al.*  
The concentration of electrochemically active species on a gold electrode provides a local measurement of current density.
- 1367 Gravity Field, Shape, and Moment of Inertia of Titan  
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Analysis of gravity data reveals that Saturn's moon Titan has a partially differentiated internal structure.  
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- 1369 Plumage Color Patterns of an Extinct Dinosaur  
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- 1373 Parent-Offspring Conflict and Coadaptation  
*C. A. Hinde et al.*  
Prenatal hormonal signaling can match a mother bird's capacity to provide food with her offsprings' expectations.  
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*K. Salaita et al.*  
Mechanical forces acting on a cell-surface receptor affect the activation of a signaling pathway involved in breast cancer.  
>> *Perspective p. 1335*
- 1385 *Lgr6* Marks Stem Cells in the Hair Follicle That Generate All Cell Lineages of the Skin  
*H. J. Snippert et al.*  
Skin wounds can be repaired by primitive stem cells into fully differentiated tissue, complete with hairs and sebaceous glands.
- 1389 Structural Sources of Robustness in Biochemical Reaction Networks  
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Models of metabolic regulation show how the stability of specific components is maintained within a varying environment.
- 1392 In Crystallo Posttranslational Modification Within a MauG/Pre-Methylamine Dehydrogenase Complex  
*L. M. R. Jensen et al.*  
Bacterial ammonia and formaldehyde production requires prior processing of a dehydrogenase to form a cofactor.  
>> *Perspective p. 1337*

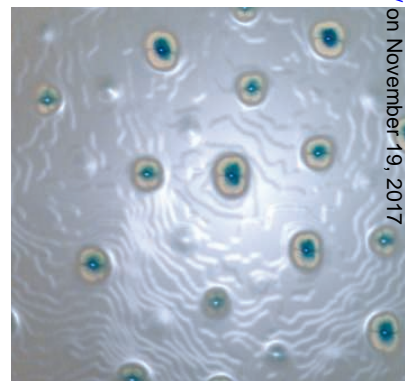
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## SCIENCEONLINE

## SCIENCEEXPRESS

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

**Caspase-Dependent Conversion of Dicer Ribonuclease into a Death-Promoting Deoxyribonuclease**

*A. Nakagawa et al.*

An enzyme that chops up RNA can be switched to DNA fragmentation and can trigger programmed cell death in worms.  
10.1126/science.1182374

**Analysis of Genetic Inheritance in a Family Quartet by Whole-Genome Sequencing**

*J. C. Roach et al.*

Genomic sequencing of an entire family reveals the rate of spontaneous mutations in humans and identifies disease genes.  
10.1126/science.1186802

**A Peroxidase/Dual Oxidase System Modulates Midgut Epithelial Immunity in *Anopheles gambiae***

*S. Kumar et al.*

Bonding between cell-surface proteins forms a physical barrier in mosquito guts to prevent microbe invasion.  
10.1126/science.1184008

**Detection of a Large-Scale Structure of Intracluster Globular Clusters in the Virgo Cluster**

*M. G. Lee et al.*

Extensive regions of mass have been located between the galaxies of the Virgo cluster.  
10.1126/science.1186496

**A Fast Soluble Carbon-Free Molecular Water Oxidation Catalyst Based on Abundant Metals**

*Q. Yin et al.*

Bulky polytungstate ligands stabilize a cobalt-based catalyst highly active for splitting water.  
10.1126/science.1185372

## SCIENCENOW

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

Highlights From Our Daily News Coverage

**For Pregnant Mice, Eating Matters More for Their Sons**

Expectant moms' bad eating habits may hurt boys more than girls.

**And the Winners of Our Blogging Contest Are ...**

*Science* picks its favorites from our supplementary coverage of the 2010 AAAS annual meeting.

**Pain's in the Genes**

A subtle genetic variant seems to dictate how much pain people feel.

## SCIENCE SIGNALING

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

The Signal Transduction Knowledge Environment

**RESEARCH ARTICLE: Pin1 and PKM $\zeta$  Sequentially Control Dendritic Protein Synthesis**

*P. R. Westmark et al.*

**PERSPECTIVE: PINing for Things Past**

*T. C. Sacktor*

Memory storage requires the inhibition of a peptidyl-prolyl isomerase to enable synthesis of the kinase PKM $\zeta$ .

**REVIEW: Stress-Activated Cap'n'Collar Transcription Factors in Aging and Human Disease**

*G. P. Sykiotis and D. Bohmann*

The oxidative stress response is an attractive target for treating human diseases and extending the healthy life span.

**NETWATCH: PhosphoSitePlus**

Explore a database of posttranslational protein modifications; in Protein Databases.

**NETWATCH: The CASpase Substrate dataBASE Homepage (CASBAH)**

Search and browse a collection of caspase substrates; in Protein Databases.

## SCIENCE CAREERS

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

Free Career Resources for Scientists

**Audacity, Part 4: Taking Liberties With Research Grants?**

*A. Sasso*

Should you propose safe research and then use the money for riskier work?

**New Opportunities and Jobs Coming in Comparative Effectiveness Research**

*K. Hede*

Recovery Act funding will boost a field focused on health care costs and quality.

## SCIENCE TRANSLATIONAL MEDICINE

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

Integrating Medicine and Science

**COMMENTARY: The Road We Must Take—Multidisciplinary Team Science**

*M. L. Disis and J. T. Slattery*

Solutions to today's complex health problems will require multidisciplinary innovative thinking and collaboration.

**PERSPECTIVE: Bladder Cancer—Optimal Application of Preclinical Models to Suitable Translational Questions**

*D. Raghavan*

New reagents tested in bladder cancer xenografts allow for better economy and focus in clinical cancer trials.



## SCIENCE TRANSLATIONAL MEDICINE

Monkeys reveal genetics advantage against HIV.

**RESEARCH ARTICLE: MHC Heterozygote Advantage in Simian Immunodeficiency Virus-Infected Mauritian Cynomolgus Macaques**

*S. L. O'Connor et al.*

Heterozygote advantage in macaque monkeys reveals that HIV vaccine should elicit broad CD8<sup>+</sup> T cell responses.

## SCIENCE PODCAST

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

Free Weekly Show

Download the 12 March *Science* Podcast to hear about parent-offspring conflict among birds, peace through vaccine diplomacy, ocean versus land biodiversity, and more.

## SCIENCE INSIDER

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Science Policy News and Analysis

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