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**COVER**

Saturn and its rings as seen by the Cassini orbiter. Saturn's rings contain innumerable chunks of water ice polluted by material of varying color and composition. The massive B ring (bottom) and the tenuous C ring (closest to the planet) are dominated by unexplained structure. Saturn's yellowish appearance signifies a deep cloud layer beneath seasonal haze. See pages 1470 and 1476.

*Image: NASA/JPL/CICLOPS***DEPARTMENTS**

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J. M. Hales et al.

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Y. Tanaka et al.

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B. Hof et al.

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C. Walther et al.

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1502 Mechanosensitive Self-Replication Driven by Self-Organization

J. M. A. Carnall et al.

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A. D. Barton et al.

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Nitrogen fixation in the South Pacific Ocean is partitioned among several microbe species with distinct ecophysologies.

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H. Shen et al.

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J. von Engelhardt et al.

A synaptic protein that regulates postsynaptic AMPA receptor responses has been cloned and functionally characterized.

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1522 Circadian Gating of the Cell Cycle Revealed in Single Cyanobacterial Cells

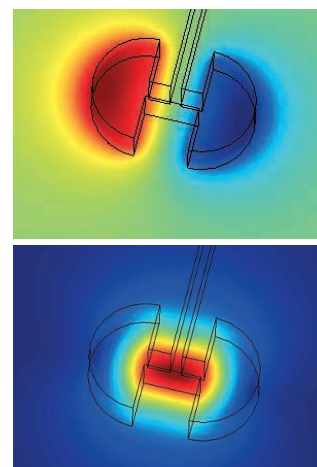
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Modeling and observation of cyanobacteria show entrainment of the cell cycle by their biological clock.

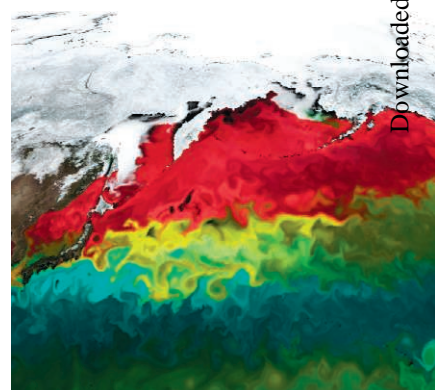
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Functional Hierarchy and Reversibility Within the Murine Spermatogenic Stem Cell Compartment

T. Nakagawa et al.

Developmental flexibility within a stem cell system underpins the robust maintenance of spermatogenesis.
10.1126/science.1182868

Resolving Mechanisms of Competitive Fertilization Success in *Drosophila melanogaster*

M. K. Manier et al.

Fluorescently labeled sperm allow direct visualization of their activity within the female reproductive tract of flies.
10.1126/science.1187096

Variation in Transcription Factor Binding Among Humans

M. Kasowski et al.

Transcription factor binding sites vary among individuals and are correlated with differences in expression.
10.1126/science.1183621

Heritable Individual-Specific and Allele-Specific Chromatin Signatures in Humans

R. McDaniel et al.

An appreciable amount of variation in chromatin status and transcription factor binding has a genetic basis.
10.1126/science.1184655

Three-Dimensional Invisibility Cloak at Optical Wavelengths

T. Ergin et al.

A structured photonic crystal can be used to cloak an object at optical wavelengths and over a wide viewing angle.
10.1126/science.1186351
>> [Science Podcast](#)

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Highlights From Our Daily News Coverage

Carbon-Capture Method Could Poison Oceans

Fertilizing algae with iron boosts levels of harmful neurotoxin.

CSI's Latest Clue—Bacteria

Unique skin microbes might allow identification of criminals.

Psychopaths Keep Their Eyes on the Prize

The brain's overreaction to rewards may lead to impulsive, antisocial behavior.

SCIENCE SIGNALING

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RESEARCH ARTICLE: Cholinergic Augmentation of Insulin Release Requires Ankyrin-B

J. A. Healy et al.

PODCAST

V. Bennett and A. M. VanHook

Reduction of ankyrin-B activity impairs maximal insulin release and is a risk factor for diabetes.

RESEARCH ARTICLE: Inferring Signaling Pathway Topologies from Multiple Perturbation Measurements of Specific Biochemical Species

T.-R. Xu et al.

Bayesian inference-based modeling identifies the most likely paths through a signaling network.

RESEARCH ARTICLE: A Loss-of-Function Screen Reveals Ras- and Raf-Independent MEK-ERK Signaling During *Chlamydia trachomatis* Infection

R. K. Gurumurthy et al.

A siRNA-based screen of host factors that influence infection by *Chlamydia* reveals the decoupling of the canonical Ras-ERK signaling pathway.

SCIENCE CAREERS

www.sciencereers.org/career_magazine

Free Career Resources for Scientists

Mind Matters: Back to Work After a Baby

I. S. Levine

Dropping off an infant and returning to work is stressful for new mothers.

Tooling Up: I'm Special, Aren't You?

D. Jensen

Your parents may say you're special, but the job market requires some humility.

Going Home to a Changing Poland

E. Pain

Reforms in Poland give molecular biologist Agnieszka Chacinska hopes for the future.
>> [News story p. 1442](#)

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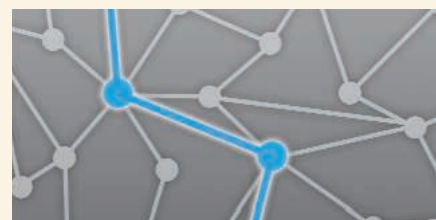
www.sciencetranslationalmedicine.org

Integrating Medicine and Science

PERSPECTIVE: Finding New Cures for Neurological Disorders—A Possible Fringe Benefit of Biodefense Research?

D. A. Jett

Drugs developed to treat exposure to toxic chemicals might help cure conditions such as stroke, epilepsy, and neurodegenerative diseases.



SCIENCE SIGNALING

Picking the right path.

RESEARCH ARTICLE: Mutations in Fibrillin-1 Cause Congenital Scleroderma—Stiff Skin Syndrome

B. L. Loeys et al.

PERSPECTIVE: Stiff and Tight Skin—A Rear Window into Fibrosis Without Inflammation

E. V. Avvedimento and A. Gabrielli

Mutations in the fibrillin-1 gene that cause a rare congenital form of scleroderma shed light on a common fibrotic condition.

RESEARCH ARTICLE: Targeting Robo4-Dependent Slit Signaling to Survive the Cytokine Storm in Sepsis and Influenza

N. R. London et al.

Blunting the increased vascular permeability caused by immune responses to Slit ligand increases survival in models of sepsis and viral infection.

SCIENCE PODCAST

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Download the 19 March *Science* Podcast to hear about the biology behind learning deficits at puberty, a three-dimensional invisibility cloak, and the Nile delta's sinking future.

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