

EDITORIAL

- 285 Common U.S. Math Standards
Philip Daro et al.

NEWS OF THE WEEK

- 290 Discovery of 'Missing' Element 117
Hints at Stable Isotopes to Come
- 291 Obama Picks Pragmatists for
New Bioethics Panel
- 293 Report Calls for Improvements
at Livermore's Giant Laser
- 293 From *Science's* Online Daily News Site
- 294 Sean Carroll and the Evolution
of an Education Maven
- 295 Biotech Crops Good for
Farmers and Environment,
Academy Finds
- 295 From the *Science* Policy Blog
- 296 Telescopes for the People
>> *Science Podcast*
- 297 New Guidelines Aim to Improve Studies
of Traumatic Brain Injury

NEWS FOCUS

- 298 Chasing a Disease to the Vanishing Point
Screening Disease Away
>> *Science Podcast*
- 301 Besting Johnny Appleseed
- 304 Nanogenerators Tap Waste Energy
to Power Ultrasmall Electronics

LETTERS

- 307 Finding Animals for Research
A. W. Ra'anan
Promoting Scientific Standards
in Germany
R. T. Radulescu et al.
The Missing Link in
Biodiversity Conservation
A. Beattie and P. Ehrlich
Energy Efficiency Merits More
Than a Nudge
P. C. Stern et al.

309 TECHNICAL COMMENT ABSTRACTS

BOOKS ET AL.

- 310 Lost Sex
I. Schön et al., Eds., reviewed by J. M. Logsdon Jr.
- 311 Art + Science Now
S. Wilson, reviewed by D. Edwards

POLICY FORUM

- 312 Does REDD+ Threaten to Recentralize
Forest Governance?
J. Phelps et al.

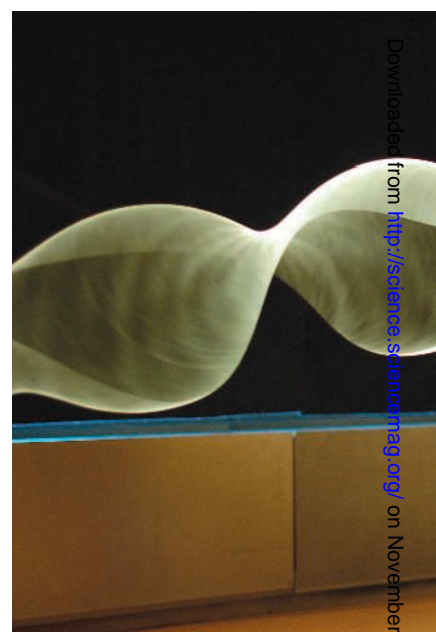
PERSPECTIVES

- 314 Dicer's Cut and Switch
Q. Liu and Z. Paroo
>> *Research Article p. 327*
- 315 In Pursuit of Water Oxidation Catalysts
for Solar Fuel Production
J. K. Hurst
>> *Report p. 342*
- 316 Tracking Earth's Energy
K. E. Trenberth and J. T. Fasullo
- 318 Cooling Energy-Hungry Data Centers
G. I. Meijer
- 319 The Future of Metals
K. Lu

CONTENTS continued >>

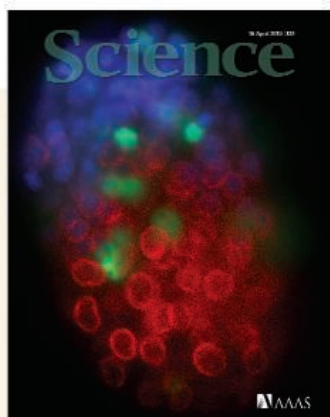


page 301



page 311

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COVER

Fluorescence microscopy image showing fragmentation of chromosomal DNA (green) during programmed cell death or apoptosis in a *Caenorhabditis elegans* embryo. Chromosomes are stained blue and nuclear envelopes red. During apoptosis, the ribonuclease Dicer, known for its role in gene silencing, is converted to a deoxyribonuclease and initiates this DNA fragmentation process. See page 327.

Image: Jay Parrish/University of Colorado

DEPARTMENTS

- 283 This Week in *Science*
- 286 Editors' Choice
- 288 *Science* Staff
- 289 Random Samples
- 380 New Products
- 381 *Science* Careers

REVIEW

- 321 Extending Healthy Life Span—
From Yeast to Humans
L. Fontana et al.

RESEARCH ARTICLE

- 327 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.
>> *Perspective p. 314*

REPORTS

- 334 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.
- 337 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.
- 339 Dilithioplumbole: A Lead-Bearing
Aromatic Cyclopentadienyl Analog
M. Saito et al.
Lead can participate in the delocalized
electron network of an aromatic carbon ring.
- 342 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.
>> *Perspective p. 315*
- 345 Oxoboryl Complexes: Boron–Oxygen
Triple Bonds Stabilized in the
Coordination Sphere of Platinum
H. Braunschweig et al.
A mild synthetic method yields a
boron analog of the widely studied
carbon monoxide ligand.
- 347 A Younger Age for ALH84001 and
Its Geochemical Link to Shergottite
Sources in Mars
T. J. Lapen et al.
The oldest known martian meteorite is
younger than previously thought, precluding
it from sampling primeval martian crust.

- 351 Evolution of an Expanded Sex-Determining
Locus in *Volvox*
P. Ferris et al.

Mating loci among green algae show conserved
gene order, but also have many unique features
that may explain gamete size differences.

- 354 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.

- 357 Structural Basis of Preexisting Immunity to
the 2009 H1N1 Pandemic Influenza Virus
R. Xu et al.

An epitope conserved between the 1918
and 2009 pandemic flu viruses explains
age-related immunity to the 2009 virus.

- 360 Divided Representation of Concurrent
Goals in the Human Frontal Lobes
S. Charron and E. Koechlin

The human brain is limited to accurately
negotiate the pursuit of two concurrent
goals at the same time.
>> *Science Podcast*

- 363 Cbln1 Is a Ligand for an Orphan
Glutamate Receptor $\delta 2$, a
Bidirectional Synapse Organizer
K. Matsuda et al.

A signaling complex serves as a synapse
organizer that acts bidirectionally on
both pre- and postsynaptic components.

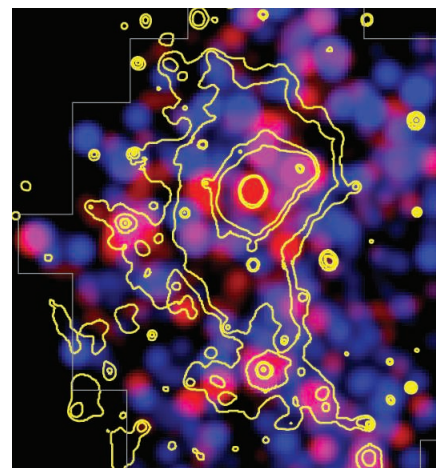
- 368 Rapid Diversification of Cell Signaling
Phenotypes by Modular Domain
Recombination
S. G. Peisajovich et al.

Systematic swapping of modular protein
domains verifies a mechanism for generation
of phenotypic diversity in yeast.

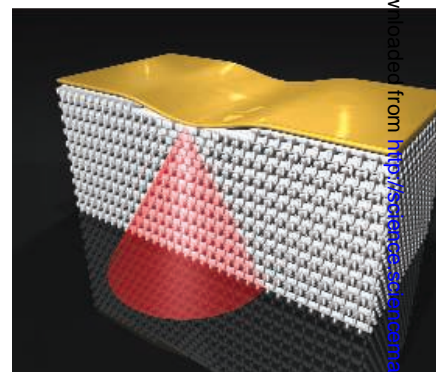
- 372 Protein Kinase C- θ Mediates Negative
Feedback on Regulatory T Cell Function
A. Zanin-Zhorov et al.

Suppressive T cells repurpose inflammatory
signaling pathways to promote their
suppressive functions.

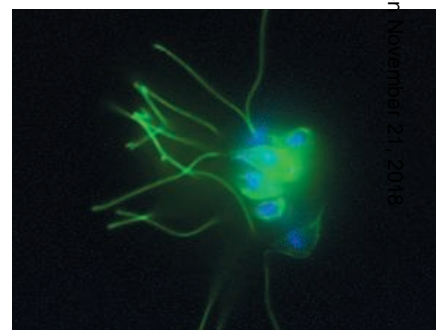
CONTENTS continued >>



page 334



page 337



page 351

SCIENCEONLINE

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pH Sensing by Intracellular *Salmonella* Induces Effector Translocation

X.-J. Yu et al.

Intravacuolar *Salmonella* senses host cytosolic pH, resulting in degradation of a regulatory complex and effector translocation.

10.1126/science.1189000

Genome-Wide Evolutionary Analysis of Eukaryotic DNA Methylation

A. Zemach et al.

Analysis of DNA methylation in 17 species suggests a path for the evolution of this epigenetic mark.

10.1126/science.1186366

Structural Insights into the Assembly and Function of the SAGA Deubiquitinating Module

N. L. Samara et al.

Structures give insight into how a regulator of eukaryotic gene expression achieves one of its chromatin-modifying functions.

10.1126/science.1190049

The Equation of State of a Low-Temperature Fermi Gas with Tunable Interactions

N. Navon et al.

A Fermi gas is characterized along the crossover regime between its weak and strongly interacting limits.

10.1126/science.1187582

Lopsided Growth of Earth's Inner Core

M. Monnereau et al.

The asymmetry of the inner core is explained by iron crystallization on one side and melting on the other.

10.1126/science.1186212

Regional Variation of Inner-Core Anisotropy from Seismic Normal-Mode Observations

A. Deuss et al.

Seismic data from the inner core reveal that anisotropic regions overlap with gravitational anomalies.

10.1126/science.1188596

TECHNICALCOMMENTS

Comment on "Modafinil Shifts Human Locus Coeruleus to Low-Tonic, High-Phasic Activity During Functional MRI" and "Homeostatic Sleep Pressure and Responses to Sustained Attention in the Suprachiasmatic Area"

S. V. Astafiev et al.

full text at www.sciencemag.org/cgi/content/full/328/5976/309-a

Response to Comment on "Modafinil Shifts Human Locus Coeruleus to Low-Tonic, High-Phasic Activity During Functional MRI"

M. J. Minzenberg et al.

full text at www.sciencemag.org/cgi/content/full/328/5976/309-b

Response to Comment on "Homeostatic Sleep Pressure and Responses to Sustained Attention in the Suprachiasmatic Area"

C. Schmidt et al.

full text at www.sciencemag.org/cgi/content/full/328/5976/309-c

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RESEARCH ARTICLE: Identification of the *miR-106b~25* microRNA Cluster as a Proto-Oncogenic *PTEN*-Targeting Intron That Cooperates with its Host Gene *MCM7* in Transformation

L. Poliseno et al.

A microRNA network regulates the tumor suppressor *PTEN* in prostate cancer.

PERSPECTIVE: Not Lost in Space—Trafficking in the Hedgehog Signaling Pathway

L. Milenkovic and M. P. Scott

Protein kinase A orchestrates Hedgehog signaling from the base of the primary cilium.

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V. Venkatraman

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D. Jensen

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PERSPECTIVE: Optimal Control of Blood Glucose—The Diabetic Patient or the Machine?

L. Brown and E. R. Edelman

Diabetic patients may benefit from a device that uses a computer algorithm to deliver proper amounts of insulin and glucagon.

PERSPECTIVE: Challenges in Using Stem Cells for Cardiac Repair

C. L. Mummery et al.

Stem cell-derived cardiomyocytes offer promise for treating damage caused by heart attacks.

RESEARCH: A Bi-Hormonal Closed-Loop Artificial Pancreas for Type 1 Diabetes

F. H. El-Khatib et al.

An algorithm continuously delivers appropriate insulin and glucagon doses to diabetic patients, maintaining their blood glucose at normal values, even after high-carbohydrate meals.

REVIEW: Exploring New Routes for Neuroprotective Drug Development in Traumatic Brain Injury

T. Janowitz and D. K. Menon

The methods and devices used in the clinical management of neurological patients can provide data to facilitate progress in treating brain trauma.

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