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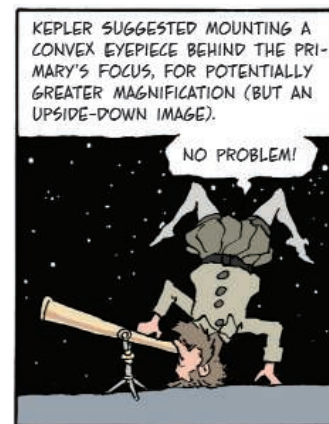
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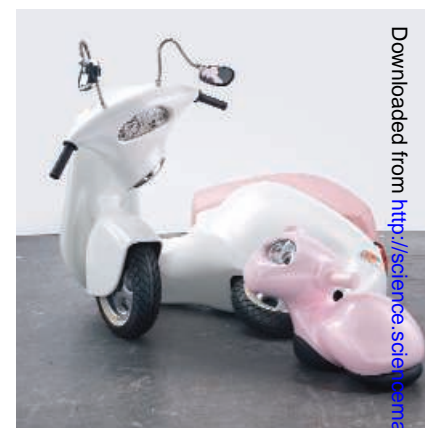
### BREVIA

- 352 **Programmed Assembly of DNA-Coated Nanowire Devices**  
*T. J. Morrow et al.*  
 Electric fields help direct metal nanowires coated with different DNA sequences into specific positions on a substrate.

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## COVER

Hot dust clouds in the center of the Milky Way, photographed by the Infrared Array Camera (IRAC) aboard the Spitzer Space Telescope. The International Year of Astronomy gets under way this week with opening ceremonies at UNESCO headquarters in Paris; *Science* marks the occasion with a special News Focus section beginning on page 326.

Image: NASA/JPL-Caltech/S. Stolovy (Spitzer Science Center/Caltech)

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## 353 Dust Formation in a Galaxy with Primitive Abundances

G. C. Sloan et al.

A carbon star lacking many heavy elements produces abundant dust, perhaps explaining the origin of dust in the early universe.

## 356 Early Lunar Magnetism

I. Garrick-Bethell et al.

Remnant magnetism in minerals in an unshocked Apollo sample implies that the Moon had a molten core 4.2 billion years ago.

## 359 Contribution of Fish to the Marine Inorganic Carbon Cycle

R. W. Wilson et al.

Fish excrete large amounts of calcium carbonate and thus influence the carbon cycle in the ocean.

&gt;&gt; Perspective p. 343

## 362 Morphogenesis of Self-Assembled Nanocrystalline Materials of Barium Carbonate and Silica

J. M. García-Ruiz et al.

The growth of inorganic crystals in a chemically coupled system produces curved morphologies like those found in biology.

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## 366 Broadband Ground-Plane Cloak

R. Liu et al.

An automated design process arranges thousands of metamaterial components to cloak an object on a metal surface.

## 369 Coherent Intrachain Energy Migration in a Conjugated Polymer at Room Temperature

E. Collini and G. D. Scholes

Extended conformations of polymers in solution foster rapid energy transport along individual chains, but not between chains.

&gt;&gt; Perspective p. 348

## 373 A Mouse Speciation Gene Encodes a Meiotic Histone H3 Methyltransferase

O. Mihola et al.

A gene responsible for sterility in the offspring of two mouse species, and therefore important in speciation, regulates gene expression via methylation in chromatin.

&gt;&gt; Perspective p. 350

376 A Single Gene Causes Both Male Sterility and Segregation Distortion in *Drosophila* Hybrids

N. Phadnis and H. A. Orr

A *Drosophila* gene that causes sterility in the offspring of two species and may be important for speciation causes increased transmission of itself to progeny.

&gt;&gt; Perspective p. 350

## 379 The Dynamics and Time Scale of Ongoing Genomic Erosion in Symbiotic Bacteria

N. A. Moran et al.

Comparisons of strains of obligate symbionts reveal stepwise evolutionary changes leading to gene inactivation and DNA loss.

382 A Polymorphism in *npr-1* Is a Behavioral Determinant of Pathogen Susceptibility in *C. elegans*

K. C. Reddy et al.

Mutations in neuropeptide receptors prevent nematode worms from swimming away to avoid bacterial pathogens.

## 384 The Structure of Rat Liver Vault at 3.5 Angstrom Resolution

H. Tanaka et al.

The large, ribonucleotide proteins involved in resisting infection have domains that bind to lipid-raft regions of the cell membrane.

## 388 Draxin, a Repulsive Guidance Protein for Spinal Cord and Forebrain Commissures

S. M. Islam et al.

A protein cue guides the formation of bundles of nerve fibers that connect the cerebral hemispheres.

## 393 Recombination of Retrotransposon and Exogenous RNA Virus Results in Nonretroviral cDNA Integration

M. B. Geuking et al.

With the help of an endogenous retrovirus, RNA virus sequence can be incorporated into mouse chromosomes.

## 396 Molecular Mechanisms of HipA-Mediated Multidrug Tolerance and Its Neutralization by HipB

M. A. Schumacher et al.

A persistence factor similar to a eukaryotic kinase regulates bacterial dormancy and contributes to antibiotic resistance in *E. coli*.

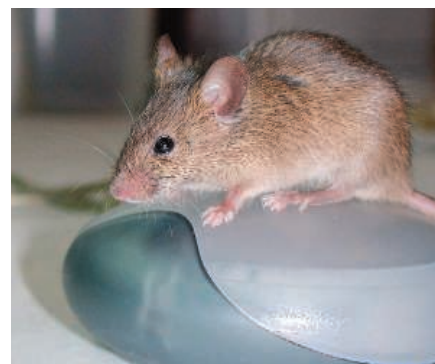
## 401 Chromatin-Associated Periodicity in Genetic Variation Downstream of Transcriptional Start Sites

S. Sasaki et al.

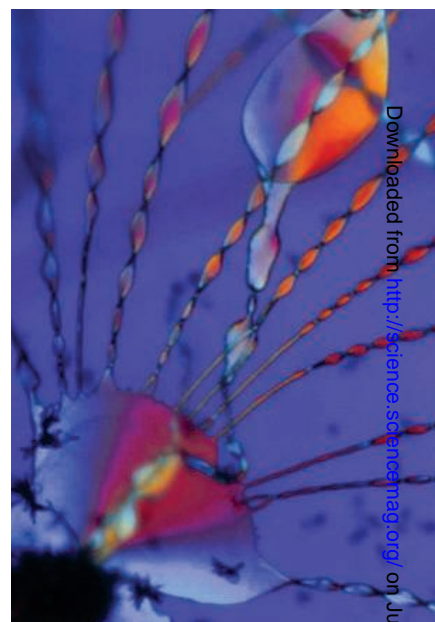
The periodic wrapping of DNA around nucleosomes in chromatin determines a periodic variation in mutation type and frequency around transcription start sites in a fish.

&gt;&gt; Perspective p. 347

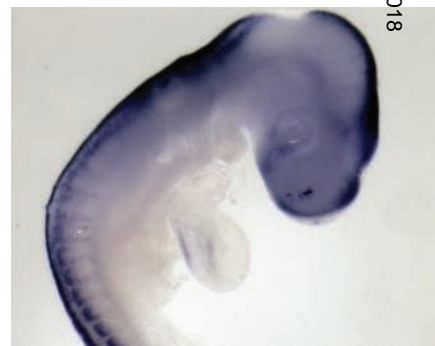
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## SCIENCEONLINE

## SCIENCEEXPRESS

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

### The Formation of Massive Star Systems by Accretion

M. R. Krumholz et al.

Numerical simulations show that instabilities can channel gas into growing massive stars despite their high radiation pressure.

>> *Science Podcast*

10.1126/science.1165857

### Strong Release of Methane on Mars in Northern Summer 2003

M. J. Mumma et al.

Earth-based spectrometers have detected seasonal variations of methane emissions from certain locations on Mars in 2003.

10.1126/science.1165243

### Sensing Chromosome Bi-Orientation by Spatial Separation of Aurora B Kinase from Kinetochores Substrates

D. Liu et al.

The mechanism for sensing tension across chromosome pairs before mitotic separation relies on the distance between enzyme and substrate.

10.1126/science.1167000

### Effects of Genetic Perturbation on Seasonal Life History Plasticity

A. M. Wilczek et al.

Interactions among mutation, germination timing, and climate alter flowering patterns in *Arabidopsis*.

10.1126/science.1165826

### A Genetic Defect Caused by a Triplet Repeat Expansion in *Arabidopsis thaliana*

S. Sureshkumar et al.

A strain of *Arabidopsis* provides a plant model for the harmful effects of repeat nucleotide expansions in populations.

10.1126/science.1164014

## SCIENCE NOW

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

Highlights From Our Daily News Coverage

### The Flashiest Dino of Them All

Researchers find oldest example of feathers used for display.

### Are You a Moneymaker? Look at Your Hands

Financial traders with relatively long ring fingers bring home the dough.

### The Fastest Way to Change a Species: Start Eating It

Human hunting alters organisms' size and breeding schedule three times faster than natural forces.

## SCIENCE SIGNALING

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

The Signal Transduction Knowledge Environment

### PERSPECTIVE: Growth and Patterning in the Limb—Signaling Gradients Make the Decision

Y. Yang

Signaling gradients coordinately regulate proliferation and cell fate determination in the developing limb.

## PODCAST

J. D. Scott et al.

The scaffold protein mAKAP localizes factors important for the cellular response to hypoxia.

## NETWATCH: Cytoscape

Cytoscape is an expandable, open-source network analysis software platform; in *Bioinformatics Resources*.

## NETWATCH: The Human Protein Atlas

An antibody-based proteomics database provides tissue-specific expression data for a growing list of human proteins; in *Protein Databases*.

## NETWATCH: Science Webinar Series

Watch live and archived online seminars sponsored by *Science/AAAS*; in *Web Broadcasts*.

## SCIENCE CAREERS

[www.sciencecareers.org/career\\_development](http://www.sciencecareers.org/career_development)

Free Career Resources For Scientists

## Tooling Up: The Job Seeker's Lexicon

D. Jensen

Job seekers need to interpret the jargon used in job ads and interviews.

## Astronomer Finds Rewards in Outreach

L. Laursen

Cameron Hummels is a student ambassador representing NASA during the International Year of Astronomy.

>> *Editorial p. 309*

## SCIENCE PODCAST

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

Free Weekly Show

Download the 16 January *Science* Podcast to hear about how massive stars may form, setting an agenda for personalized medicine, the culture of astronomy, and more.

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Limb formation.



SCIENCE CAREERS

Reaching out for NASA.



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