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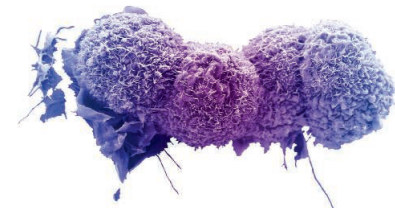
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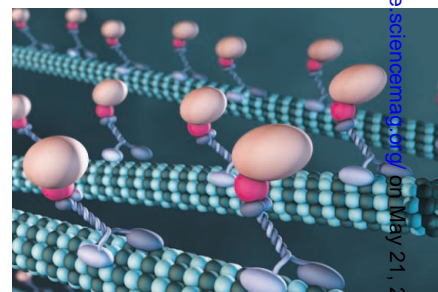
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## COVER

First described by David Hilbert in 1891, the Hilbert curve is a one-dimensional fractal trajectory that densely fills higher-dimensional space without crossing itself. A new method for reconstructing the three-dimensional architecture of the human genome, described on page 289, reveals a polymer analog of Hilbert's curve at the megabase scale.

Image: Leonid A. Mirny and Erez Lieberman-Aiden

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A protein heterotetramer repairs RNA cleaved by ribotoxins, and methylation protects against further ribotoxin attack.

## RESEARCH ARTICLES

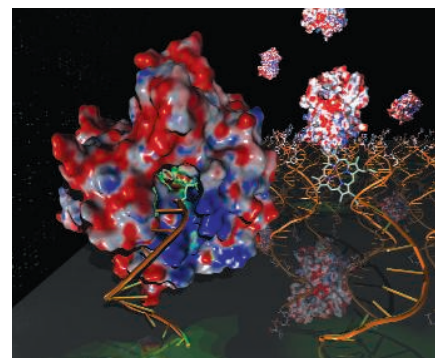
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An alternative developmental pathway for vertebrate vasculature segregates a precursor vessel into two separate vessels.  
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- 298 **KLF Family Members Regulate Intrinsic Axon Regeneration Ability**  
D. L. Moore et al.  
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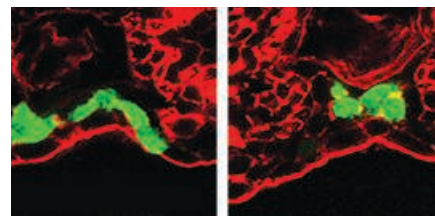
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## SCIENCEONLINE

## SCIENCEEXPRESS

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

### Genotype Analysis Identifies the Cause of the "Royal Disease"

*E. I. Rogaev et al.*

DNA from historical specimens reveals the mutation causing the hemophilia that afflicted the royal families of Europe.  
10.1126/science.1180660

### Detection of an Infectious Retrovirus, XMRV, in Blood Cells of Patients with Chronic Fatigue Syndrome

*V. C. Lombardi et al.*

Two-thirds of a sample of 101 U.S. patients with chronic fatigue syndrome harbor an infectious retrovirus in their blood cells.  
10.1126/science.1179052

### A New Virus for Old Diseases?

*J. M. Coffin and J. P. Stoye*

10.1126/science.1181349

### Coupling of CO<sub>2</sub> and Ice Sheet Stability Over Major Climate Transitions of the Last 20 Million Years

*A. K. Tripati et al.*

Changes in global sea level and atmospheric carbon dioxide levels were similar during the past 20 million years.  
10.1126/science.1178296

### Microsecond Simulations of Spontaneous Methane Hydrate Nucleation and Growth

*M. R. Walsh et al.*

An extended simulation uncovers the intricate steps whereby methane can be trapped in ice.  
10.1126/science.1174010

## TECHNICALCOMMENTS

### Comment on "The *Arabidopsis* Circadian Clock Incorporates a cADPR-Based Feedback Loop"

*X. Xu et al.*

full text at [www.sciencemag.org/cgi/content/full/326/5950/230-b](http://www.sciencemag.org/cgi/content/full/326/5950/230-b)

### Response to Comment on "The *Arabidopsis* Circadian Clock Incorporates a cADPR-Based Feedback Loop"

*A. N. Dodd et al.*

full text at [www.sciencemag.org/cgi/content/full/326/5950/230-c](http://www.sciencemag.org/cgi/content/full/326/5950/230-c)

## SCIENCENOW

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Forgotten coin stashes suggest Roman population dropped as the republic became an empire.

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Dousing plants with their own hormones helps them expel toxic chemicals.

## SCIENCE SIGNALING

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

The Signal Transduction Knowledge Environment

### RESEARCH ARTICLE: Wingless Promotes Proliferative Growth in a Gradient-Independent Manner

*L. A. Baena-Lopez et al.*

Proliferation of cells in the *Drosophila* wing does not require a gradient of the morphogen Wingless.

### RESEARCH ARTICLE: Coordinated Responses to Oxygen and Sugar Deficiency Allow Rice Seedlings to Tolerate Flooding

*K.-W. Lee et al.*

The protein kinase CIPK15 integrates the response to hypoxia with sugar signaling to allow submerged rice seedlings to grow.

### PERSPECTIVE: Apoptosis—Calling Time on Apoptosome Activity

*C. Adrain and S. J. Martin*

Caspase-9 autoprocessing displaces active caspase-9 bound to the apoptosome, thereby limiting proteolytic activity.

### PERSPECTIVE: Snapshots Form a Big Picture of Guanine Nucleotide Exchange

*K. Rittinger*

DOCK9 uses a unique mechanism to discriminate between GDP- and GTP-bound forms of Cdc42.

## PODCAST

*J.-P. Vincent and A. M. VanHook*

Graded distribution of Wingless is not required for cell proliferation in the fly wing disc.

## SCIENCE CAREERS

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

Free Career Resources for Scientists

## SPECIAL RISK-TAKING ISSUE

### Audacity, Part 2: A Blueprint for Audacious Science

*A. Sasso*

Breakthrough science needs passion, a supportive institution, and a suitable problem.

### The Entrepreneurial Bug

*A. Kotok*

Academic scientists tell how they became driven to commercialize their science.

### Making the Most of Opportunities and Challenges

*R. Mejia*

Neuroscientist Sam Pfaff went on to success after a falling out with his adviser.

## SCIENCE TRANSLATIONAL MEDICINE

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### EDITORIAL: Space for the Cures

*E. A. Zerhouni*

*Science* launches a new journal for translational research.

### COMMENTARY: Changing Models of Biomedical Research

*W. F. Crowley Jr. and J. F. Gusella*

Academic medical centers at the hub of a new style of research.

### RESEARCH: Building Better Bones

*D. Gesty-Palmer et al.*

A biased agonist may promote bone growth more effectively.

## PODCAST

This inaugural podcast features Advisory Board member Betsy Nabel on translational medicine and a discussion with several authors about osteoporosis drugs.

## SCIENCEPODCAST

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A History of Beginnings

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