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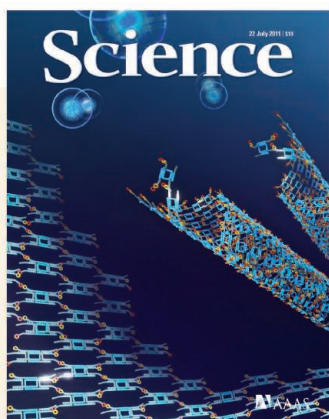
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## COVER

Schematic representation of one- and two-dimensional RNA nanostructures, 100 to 200 nanometers in length, built from single-stranded RNA building blocks programmed to self-assemble within bacterial cells. On page 470, Delebecque *et al.* describe the design and use of these assemblies as scaffolds to spatially organize a hydrogen-producing biosynthetic pathway.

*Image: Krista Shapton (Blot Media) and Faisal Aldaye (Harvard Medical School)*

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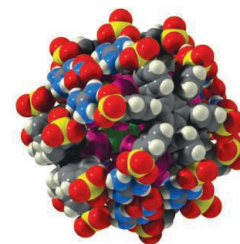
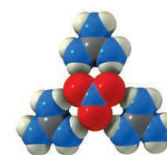
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Chromosome tips seem to be maintained by an unusual mechanism in tumors that have mutations in chromatin remodeling genes.

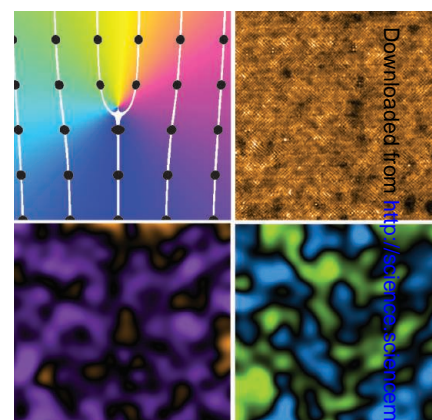
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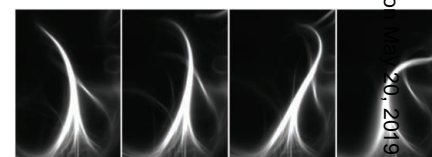
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## SCIENCEEXPRESS

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**Tet Proteins Can Convert 5-Methylcytosine to 5-Formylcytosine and 5-Carboxylcytosine**  
S. Ito et al.

Evidence for a possible route for DNA demethylation in animals is suggested.  
10.1126/science.1210597

**Synaptic Pruning by Microglia Is Necessary for Normal Brain Development**

R. C. Paolicelli et al.

A good brain needs a good vacuum cleaner.  
10.1126/science.1202529

**Optix Drives the Repeated Convergent Evolution of Butterfly Wing Pattern Mimicry**

R. D. Reed et al.

*Heliconius* butterfly wing pattern mimicry is driven by cis-regulatory variation of the *optix* gene.  
10.1126/science.1208227

**Impacts of Fishing Low-Trophic Level Species on Marine Ecosystems**

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**The Persistently Variable “Background” Stratospheric Aerosol Layer and Global Climate Change**

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**Quantum Simulation of Frustrated Classical Magnetism in Triangular Optical Lattices**

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10.1126/science.1207239

## TECHNICAL COMMENTS

**Comment on “Activation of  $\beta$ -Catenin in Dendritic Cells Regulates Immunity Versus Tolerance in the Intestine”**

K. M. Murphy

Full text at [www.sciencemag.org/cgi/content/full/333/6041/405-a](http://www.sciencemag.org/cgi/content/full/333/6041/405-a)

**Response to Comment on “Activation of  $\beta$ -Catenin in Dendritic Cells Regulates Immunity Versus Tolerance in the Intestine”**

S. Manicassamy and B. Pulendran

Full text at [www.sciencemag.org/cgi/content/full/333/6041/405-b](http://www.sciencemag.org/cgi/content/full/333/6041/405-b)

## SCIENCE NOW

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New ‘time cloak’ hides events that occur at a specific moment.

<http://scim.ag/timecloak>

**‘Asexual’ Ants May Be Having Sex After All**  
Researchers turn up evidence of sperm in colonies full of female clones.

<http://scim.ag/asex-ants>

**Cheating on the Beachmaster**

Female elephant seals often avoid the harem and mate on the sly.

<http://scim.ag/beachmaster>

## SCIENCE SIGNALING

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

The Signal Transduction Knowledge Environment  
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**RESEARCH ARTICLE: The Deacetylase SIRT1 Promotes Membrane Localization and Activation of Akt and PDK1 During Tumorigenesis and Cardiac Hypertrophy**

N. R. Sundaresan et al.

Deacetylation of Akt and its activating kinase PDK1 promotes cell growth in physiological and pathological settings.

**RESEARCH ARTICLE: PreTCR and TCR $\gamma\delta$  Signal Initiation in Thymocyte Progenitors Does Not Require Domains Implicated in Receptor Oligomerization**

J. Mahtani-Patching et al.

T cell receptor chains lacking oligomerization domains can drive the development of early thymocyte progenitors.

**EDITORIAL GUIDE: Gatekeepers of Science and Society**

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Cells and society rely on information gatekeepers to identify problems and direct an appropriate response.

**MEETING REPORT: Sequence, Structure, and Network Evolution of Protein Phosphorylation**

C. S. H. Tan

Analysis of phosphorylation-based signaling systems provides insight into the evolution of these regulatory molecules.

## SCIENCE TRANSLATIONAL MEDICINE

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

Integrating Medicine and Science

**20 July issue: <http://scim.ag/stm072011>**

**COMMENTARY: Teaching Biomedical Technology Innovation as a Discipline**

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**RESEARCH ARTICLE: Cardiac AAV9-S100A1 Gene Therapy Rescues Post-Ischemic Heart Failure in a Preclinical Large Animal Model**

S. T. Pleger et al.

A protein that regulates cellular calcium, delivered by gene therapy, improves cardiac function in pigs with heart failure.

**RESEARCH ARTICLE: A Common Mutation in the Defensin *DEFB126* Causes Impaired Sperm Function and Subfertility**

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**PERSPECTIVE: Defending Male Fertility**

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**RESEARCH ARTICLE: Recurrent *GNAS* Mutations Define an Unexpected Pathway for Pancreatic Cyst Development**

J. Wu et al.

A mutation in the gene *GNAS* serves as a marker for pancreatic cysts that can progress to become invasive adenocarcinomas, guiding therapy.

## SCIENCE CAREERS

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

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**Space Cadet**

V. Venkatraman

As the shuttle makes its final orbits, scientist-astronaut Kathleen Rubins focuses on the future.

[http://scim.ag/space\\_cadet](http://scim.ag/space_cadet)

**A Solo Career in Patent Law**

S. Reed et al.

Engineer-turned-patent attorney Kate Hillis talks about starting over with a start-up of her own.

[http://scim.ag/patent\\_law](http://scim.ag/patent_law)

## SCIENCE PODCAST

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On the 22 July *Science* Podcast: projecting coral reef futures, carbon release linked to the end-Triassic mass extinction, understanding parrot talk, and more.

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Science Policy News and Analysis

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