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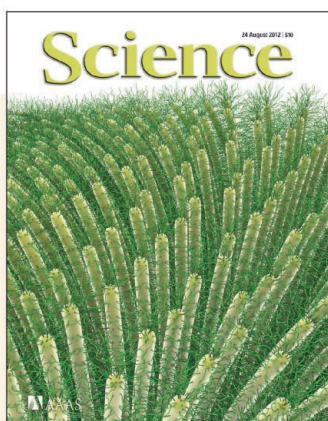


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## COVER

Artist's rendering of the airway epithelial cell surface in human lungs. The airway surface is lined by arrays of cylindrical cilia (shown as yellow projections) that are 7 micrometers long and 200 nanometers in diameter. The cilia and airway surface are covered by tethered biomacromolecules (shown as green hairs) that form dense, brushlike structures. These epithelial brushes protect the airways from infectious agents and ensure efficient flow of mucus from healthy lungs. See page 937. For the story behind the cover, go to <http://scim.ag/cov6097>.

Image: Yan Liang ([www.l2xy2.com](http://www.l2xy2.com)), Li-Heng Cai, Michael Rubinstein

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*B. Button et al.*  
The lung is protected by a brushlike biopolymer that contributes to mucus flow and can trigger muco-obstructive diseases.  
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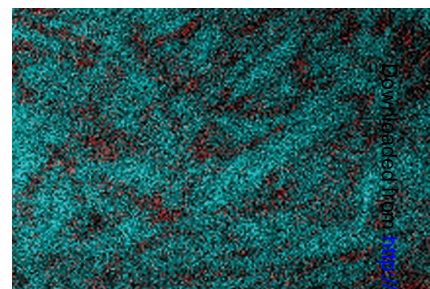
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- 957 Mapping the Origins and Expansion of the Indo-European Language Family  
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The density and compaction state of chromatin directly regulates the activity of a transcription repressor protein complex.  
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Inhibition of a key metabolic enzyme reprograms metabolic flux toward pathways critical for cancer cell proliferation.  
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- 984 Strategy-Dependent Encoding of Planned Arm Movements in the Dorsal Premotor Cortex  
*T. M. Pearce and D. W. Moran*  
The amount of preparatory neural activity in the brain depends on movement complexity and conscious planning.

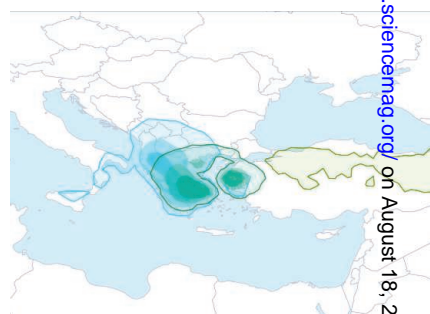
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## SCIENCEONLINE

## SCIENCEEXPRESS

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

### Genome Sequencing Identifies a Basis for Everolimus Sensitivity

G. Iyer et al.

Tumor genome sequencing reveals the molecular basis of a patient's unexpected and dramatic response to a cancer drug.

10.1126/science.1226344

### Acute Gastrointestinal Infection Induces Long-Lived Microbiota-Specific T Cell Responses

T. W. Hand et al.

Enteric infections induce lasting adaptive immunity against commensal bacteria that may play a role in intestinal problems.

10.1126/science.1220961

### Cold-Inducible RNA-Binding Protein Modulates Circadian Gene Expression Posttranscriptionally

J. Morf et al.

An RNA-binding protein whose cyclic accumulation is regulated by body temperature confers robustness to circadian oscillators.

10.1126/science.1217726

### Adhesion Functions in Cell Sorting by Mechanically Coupling the Cortices of Adhering Cells

J.-L. Maître et al.

Cell adhesion provides a mechanical scaffold for cell cortex tension to drive cell sorting during zebrafish gastrulation.

10.1126/science.1225399

### Molecular Mechanics of Cardiac Myosin-Binding Protein C in Native Thick Filaments

M. J. Previs et al.

A myosin thick filament-associated sarcomeric protein modulates cardiac contractility in a phosphorylation-dependent manner.

10.1126/science.1223602

### Synthesis and Characterization of a Rhodium(I) $\sigma$ -Alkane Complex in the Solid State

S. D. Pike et al.

Hydrogenation of a crystalline precursor enables structural characterization of a commonly evoked reaction intermediate.

10.1126/science.1225028

## SCIENCENOW

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

Highlights From Our Daily News Coverage

### Melting Greenland Growing Darker

Last month's sudden, widespread surface melt may aggravate a decade-long darkening trend.

<http://scim.ag/Melting-Greenland>

### Semen's Secret Ingredient

New research identifies a molecule in semen that promotes female fertility.

<http://scim.ag/Secret-Ingredient>

### How to Line a Thermonuclear Reactor

Scientists hit upon a solution that erodes slowly while using minimal fuel.

[http://scim.ag/Thermonuclear\\_Reactor](http://scim.ag/Thermonuclear_Reactor)

## SCIENCE SIGNALING

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

The Signal Transduction Knowledge Environment

21 August issue: <http://scim.ag/ss082112>

### RESEARCH ARTICLE: Hedgehog-Stimulated Chemotaxis Is Mediated by Smoothed Located Outside the Primary Cilium

M. F. Bijlsma et al.

### PERSPECTIVE: The Path to Chemotaxis and Transcription Is Smoothed

C. Lin et al.

Distinct outputs of Hedgehog signaling arise from different subcellular localization of the signal transducer Smoothed.

### RESEARCH ARTICLE: The Protease Omi Cleaves the Mitogen-Activated Protein Kinase Kinase MEK1 to Inhibit Microglial Activation

Q. Hu et al.

Loss of a protease in microglia results in neuroinflammation that contributes to neurodegeneration and Parkinson's disease.

## SCIENCE TRANSLATIONAL MEDICINE

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

Integrating Medicine and Science

22 August issue: <http://scim.ag/stm082212>

### RESEARCH ARTICLE: Niacin Lipid Efficacy Is Independent of Both the Niacin Receptor GPR109A and Free Fatty Acid Suppression

B. Lauring et al.

### FOCUS: It Ain't Over 'Til the Fat Lady Sings

S. Offermanns

GPR109A is not the target mediating niacin's lipid efficacy, and the free fatty acid hypothesis does not explain niacin's mechanism of action.

### RESEARCH ARTICLE: Tracking a Hospital Outbreak of Carbapenem-Resistant *Klebsiella pneumoniae* with Whole-Genome Sequencing

E. S. Snitkin et al.

Tracking a hospital outbreak of carbapenem-resistant *Klebsiella pneumoniae* with whole-genome sequencing revealed its origin and probable modes of transmission.

### REVIEW: Engineering Approaches to Immunotherapy

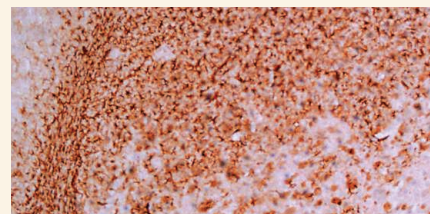
M. A. Swartz et al.

The rapidly evolving field of immunoengineering will bring new design strategies to clinical immunology.

### RESEARCH ARTICLE: Targeted Disruption of the BCL9/ $\beta$ -Catenin Complex Inhibits Oncogenic Wnt Signaling

K. Takada et al.

Locking BCL9/ $\beta$ -catenin interaction with a stapled peptide inhibits Wnt-dependent transcription and suppresses growth and metastasis in colon cancer with multiple myeloma.



SCIENCE SIGNALING

Inflammation in neurodegeneration.

## SCIENCE CAREERS

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

Free Career Resources for Scientists

### Experimental Error: Is Science Cool? No.

A. Ruben

As the wider world celebrates science's renewed coolness, our columnist stubbornly questions the world's right to decide.

[http://scim.ag/EE\\_Coolness](http://scim.ag/EE_Coolness)

### Perspective: On Motivation

J. Austin

The best way to motivate scientists is to engage them, encourage them, and stay out of their way.

[http://scim.ag/Perspective\\_Motivation](http://scim.ag/Perspective_Motivation)

## SCIENCE PODCAST

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

Free Weekly Show

On the 24 August Science Podcast: mapping the history of Indo-European languages, the origins of a supernova, the Guppy Project, and more.

## SCIENCE INSIDER

[news.sciencemag.org/scienceinsider](http://news.sciencemag.org/scienceinsider)

Science Policy News and Analysis

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