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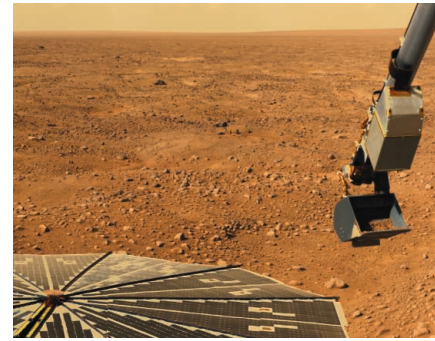
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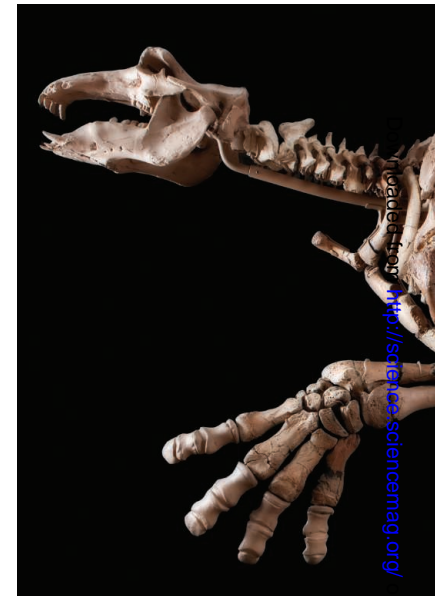
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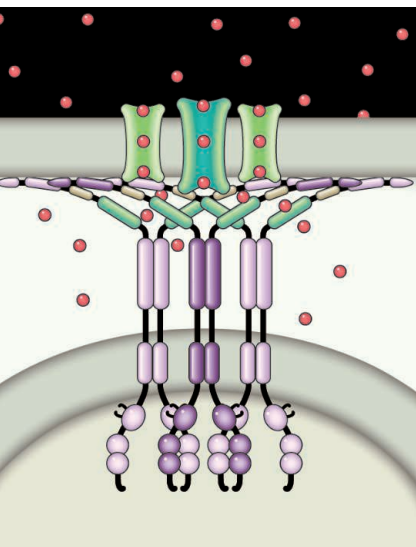
## COVER

An artist's rendition of the Kepler-9 system in which two Saturn-size planets transit the same star. The radii of the planets are roughly 8% of the radius of the star, which itself is 10% larger in radius than our Sun. Timing variations in the transits of these planets provide a signature of their gravitational interaction and can be used to establish their masses. See page 51.

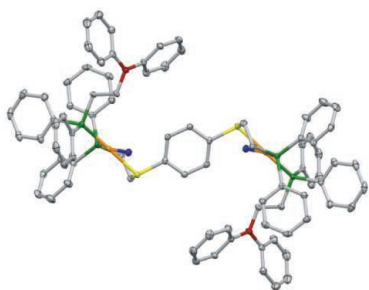
Image: NASA/Ames/JPL Caltech/T. Pyle

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- 55 **Piezo1 and Piezo2 Are Essential Components of Distinct Mechanically Activated Cation Channels**  
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- 66 **Allosteric Supramolecular Triple-Layer Catalysts**  
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- 70 **Isoprenoid Pathway Optimization for Taxol Precursor Overproduction in *Escherichia coli***  
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- 84 **Cellodextrin Transport in Yeast for Improved Biofuel Production**  
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- 86 **Sequencing of *Culex quinquefasciatus* Establishes a Platform for Mosquito Comparative Genomics**  
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- 90 **A Critical Role for LTA<sub>4</sub>H in Limiting Chronic Pulmonary Neutrophilic Inflammation**  
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- 105 **The Calcium Store Sensor, STIM1, Reciprocally Controls Orai and Ca<sub>v</sub>1.2 Channels**  
Y. Wang et al.  
The sensor protein that monitors depletion of intracellular calcium regulates two classes of calcium entry channels.  
>> *Perspective p. 43*

## SCIENCEONLINE

## SCIENCEEXPRESS

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

### Fossil Evidence for Evolution of the Shape and Color of Penguin Feathers

J. A. Clarke et al.

A fossil penguin shows that the wing and feather form evolved before distinctive microstructural changes in the feathers.

10.1126/science.1193604

### Evidence for a Collective Intelligence Factor in the Performance of Human Groups

A. W. Woolley et al.

A metric for group performance on a battery of cognitive tasks yields a group intelligence quantity: collective intelligence.

10.1126/science.1193147

>> [Science Podcast](#)

### Structure of a Eukaryotic CLC Transporter Defines an Intermediate State in the Transport Cycle

L. Feng et al.

The structure of a chloride transporter and its regulatory domain provides insight into the ion-exchange mechanism.

10.1126/science.1195230

### Polarized Myosin Produces Unequal-Size Daughters During Asymmetric Cell Division

G. Ou et al.

Motor proteins help to produce developmentally distinct daughter cells during development.

10.1126/science.1196112

## TECHNICALCOMMENTS

### Comment on "The Human K-Complex Represents an Isolated Cortical Down-State"

F. Amzica

Full text at [www.sciencemag.org/cgi/content/full/330/6000/35-a](http://www.sciencemag.org/cgi/content/full/330/6000/35-a)

### Response to Comment on "The Human K-Complex Represents an Isolated Cortical Down-State"

S. S. Cash et al.

Full text at [www.sciencemag.org/cgi/content/full/330/6000/35-b](http://www.sciencemag.org/cgi/content/full/330/6000/35-b)

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Highlights From Our Daily News Coverage

### Primordial Magnetic Field May Permeate the Universe

Halos in images of supermassive black holes reveal another possible big bang leftover.

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Study with animal TV stars reveals the sophisticated strategy of dominant females.

### The Sun Can Lob Curveballs

Scientists discover that some solar magnetic storms will loop toward Earth.

## SCIENCE SIGNALING

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

The Signal Transduction Knowledge Environment

### RESEARCH ARTICLE: Signaling from the Endoplasmic Reticulum Activates Brassinosteroid Signaling and Promotes Acclimation to Stress in *Arabidopsis*

P. Che et al.

BR signaling may integrate stress responses and growth processes to optimize growth under challenging environmental conditions.

### RESEARCH ARTICLE: Coupling Mechanism of a GPCR and a Heterotrimeric G Protein During Chemoattractant Gradient Sensing in *Dictyostelium*

X. Xu et al.

Imaging analyses and computer simulations suggest that a G protein-coupled receptor and its G protein associate only in the presence of ligand.

### RESEARCH ARTICLE: Molecular Mechanism of Calcium Channel Regulation in the Fight-or-Flight Response

M. D. Fuller et al.

### PERSPECTIVE: $\beta$ -Adrenergic Regulation of the L-Type $\text{Ca}^{2+}$ Channel $\text{Ca}_v1.2$ by PKA Rekindles Excitement

J. W. Hell

Modulation of cardiac  $\text{Ca}^{2+}$  channels by protein kinase A in the fight-or-flight response involves their proteolytic processing and just the right amount of anchoring protein AKAP.

### PERSPECTIVE: Sphingolipids—The Oil on the TRAFire That Promotes Inflammation

G. Napolitano and M. Karin

Lipid second messengers are required for signaling through tumor necrosis factor and Toll-like receptors.

## SCIENCE CAREERS

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

Free Career Resources for Scientists

### Taken for Granted: Making Book on America's Universities

B. L. Benderly

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E. Pain

Voluntary activities such as helping to organize conferences offer early-career scientists opportunities to gain new skills and broaden horizons.

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Integrating Medicine and Science

### COMMENTARY: Why University-Industry Partnerships Matter

A. M. Boccanfuso

Optimizing the process by which discoveries are translated to innovative products requires enhanced links between academia and industry.

### PERSPECTIVE: Bacterial Exploitation of Host Cell Signaling

R. Lu and M. B. Goldberg

A new bacterial phosphatase that perturbs host-cell signaling circuits highlights a class of pathogen proteins that may serve as potent therapeutic targets.

### RESEARCH ARTICLE: Interfering with Resistance to Smoothed Antagonists by Inhibition of the PI3K Pathway in Medulloblastoma

S. Buonamici et al.

Resistance of medulloblastoma to Smo antagonists can be delayed or prevented by specific drug combinations.

### RESEARCH ARTICLE: A Central Role for Free Heme in the Pathogenesis of Severe Sepsis

R. Larsen et al.

Heme from red blood cells released in septic shock worsens organ dysfunction and increases the risk of death, but can be overcome by a scavenger of free heme.

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