



## THIS WEEK

### EDITORIALS

---

#### Time for the social sciences

#### WORLD VIEW

---

#### The rising pressure of global water shortages

## NEWS IN FOCUS

#### Nicaragua defies canal protests

Scientists call for independent environmental assessment.

Lucas Laursen

#### Planet hunters plot course for habitable worlds

Researchers aim to set aside differences in search for life on distant spheres.

Alexandra Witze

#### Ebola raises profile of blood-based therapy

Convalescent plasma therapy is trialled to fight Ebola, but could also be used for new and emerging pathogens.

Declan Butler

#### What to expect in 2015

*Nature* looks at what the New Year holds for science.

Elizabeth Gibney

#### Correction

### FEATURE

---

#### Science in 2015

From Gradzilla to coffee consumption: the research enterprise quantified for the year to come.

Mark Zastrow

## COMMENT

#### Leadership: New year's resolutions

Nine scientific leaders share their goals for 2015, professional and personal.

### BOOKS AND ARTS

---

#### Listings: Science in culture 2015

## CORRESPONDENCE

---

### **European Union: New law risks release of invasive species**

Philip E. Hulme

### **Air pollution: Harmful soot spurs climate-policy action**

David G. Victor, V. Ramanathan & Durwood Zaelke

### **Emissions limits: Green heating plan threatens air quality**

Gordon McFiggans

### **Publishing: Criteria for Nature Index questioned**

Robin Haunschild & Lutz Bornmann

## OBITUARY

---

### **Paul von Ragué Schleyer (1930–2014)**

Chemist who launched the study of caged hydrocarbons.

Henry F. Schaefer

## CAREERS

## FEATURE

---

### **Hopes for the year ahead**

Monya Baker

**naturejobs** [job listings and advertising features](#)

## FUTURES

### [Infraction](#)

Rapid progress.

John Gilbey

## SPECIALS

## TOOLBOX

---

### **Programming tools: Adventures with R**

A guide to the popular, free statistics and visualization software that gives scientists control of their own data analysis.

Sylvia Tippmann

## RESEARCH

## NEWS & VIEWS

---

### **Molecular biology: Entry signals control development**

Jonathan D. Dinman

### **Materials science: Like cartilage, but simpler**

Anne Ladegaard Skov

### **Structural biology: Photosynthetic complex in close-up**

Ilme Schlichting

### **50 & 100 Years Ago**

### **Microbiology: Diverted on the way to memory**

Gordon Y. C. Cheung & Michael Otto

**Cell cycle: It takes three to find the exit**

**Mathieu Bollen**

**Earth science: Ocean circulation and rapid climate change**

**Ellen E. Martin**

## ARTICLES

---

**RNA regulons in *Hox* 5' UTRs confer ribosome specificity to gene regulation**

**Shifeng Xue, Siqi Tian, Kotaro Fujii, Wipapat Kladwang, Rhiju Das+ [et al.](#)**

**Architecture and conformational switch mechanism of the ryanodine receptor**

**Rouslan G. Efremov, Alexander Leitner, Ruedi Aebersold & Stefan Raunser**

**Structure of a mammalian ryanodine receptor**

**Ran Zalk, Oliver B. Clarke, Amédée des Georges, Robert A. Grassucci, Steven Reiken+ [et al.](#)**

**Structure of the rabbit ryanodine receptor RyR1 at near-atomic resolution**

**Zhen Yan, Xiao-chen Bai, Chuangye Yan, Jianping Wu, Zhangqiang Li+ [et al.](#)**

## LETTERS

---

**A higher-than-predicted measurement of iron opacity at solar interior temperatures**

**J. E. Bailey, T. Nagayama, G. P. Loisel, G. A. Rochau, C. Blancard+ [et al.](#)**

**Higher-than-predicted saltation threshold wind speeds on Titan**

**Devon M. Burr, Nathan T. Bridges, John R. Marshall, James K. Smith, Bruce R. White+ [et al.](#)**

**Observation of quantized conductance in neutral matter**

**Sebastian Krinner, David Stadler, Dominik Husmann, Jean-Philippe Brantut & Tilman Esslinger**

**An anisotropic hydrogel with electrostatic repulsion between cofacially aligned nanosheets**

**Mingjie Liu, Yasuhiro Ishida, Yasuo Ebina, Takayoshi Sasaki, Takaaki Hikima+ [et al.](#)**

**Strong and deep Atlantic meridional overturning circulation during the last glacial cycle**

**E. Böhm, J. Lippold, M. Gutjahr, M. Frank, P. Blaser+ [et al.](#)**

**Origins of major archaeal clades correspond to gene acquisitions from bacteria**

**Shijulal Nelson-Sathi, Filipa L. Sousa, Mayo Roettger, Nabor Lozada-Chávez, Thorsten Thiergart+ [et al.](#)**

**Identification of multipotent mammary stem cells by protein C receptor expression**

**Daisong Wang, Cheguo Cai, Xiaobing Dong, Qing Cissy Yu, Xiao-Ou Zhang+ [et al.](#)**

**Hepatitis A virus and the origins of picornaviruses**

**Xiangxi Wang, Jingshan Ren, Qiang Gao, Zhongyu Hu, Yao Sun+ [et al.](#)**

**Human intracellular ISG15 prevents interferon- $\alpha/\beta$  over-amplification and auto-inflammation**

**Xianqin Zhang, Dusan Bogunovic, Béatrice Payelle-Brogard, Véronique Francois-Newton, Scott D. Speer+ [et al.](#)**

**A PP1–PP2A phosphatase relay controls mitotic progression**

**Agnes Grallert, Elvan Boke, Anja Hagting, Ben Hodgson, Yvonne Connolly+ [et al.](#)**

**Native structure of photosystem II at 1.95 Å resolution viewed by femtosecond X-ray pulses**  
**Michihiro Suga, Fusamichi Akita, Kunio Hirata, Go Ueno, Hironori Murakami**[+ \*et al.\*](#)

**Structure of an integral membrane sterol reductase from *Methylobacterium alcaliphilum***  
**Xiaochun Li, Rita Roberti & Günter Blobel**