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Modelling disease in animals requires first-class experimental design

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Spotlight on California

## NEWS IN FOCUS



### CLIMATE CHANGE

## Carbon trading in doubt

WikiLeaks reveals that most of India's carbon-credit claims are ineligible

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#### 518 GENOMICS

Europe's epigenomics research receives funding boost

#### 519 GLOBAL HEALTH

Diarrhoea-prevention programme rolls out across Africa

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Nature looks at ways to stop potentially good drugs from being lost in the development pipeline



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#### 532 POLICY

##### Time to legislate for the good life

Charles Seaford

Governments should prioritize well-being over economic data

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#### 534 EPIGENETICS

##### Beyond face value

Jonathan Weitzman

Two books evaluate environmental influences on the genome

#### 535 BOOKS IN BRIEF

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##### Tuning into translation

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## CORRESPONDENCE

538 Universities can cut costs / Ireland making progress / Turkish science is too centralized

### Q&A

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String theory is one of the inspirations for 'maths nerd' Björk's latest album

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## FUTURES

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## RESEARCH

### NEW ONLINE

539 Papers published this week at nature.com

### NEWS & VIEWS

#### 540 STRUCTURAL BIOLOGY

##### Snapshot of a signalling complex

Structure and dynamics of an agonist-bound GPCR–G-protein complex  
*Thue W Schwartz & Thomas P Sakmar*  
 SEE ARTICLE P.549 & LETTER P.611

#### 541 COSMOLOGY

##### Gravity tested on large scales

The gravitational redshift of galaxy clusters and theories of gravity  
*Gary Wegner* SEE LETTER P.567

#### 543 IMMUNOLOGY

##### Recognition of a unique partner

Mechanism underlying assembly of proinflammatory inflammasomes  
*Denise M Monack* SEE LETTERS P.592 & 596

#### 544 CLIMATE SCIENCE

##### Ocean dynamics not required?

The influence of ocean dynamics on the Southern Oscillation  
*Jing-Jia Luo*

#### 546 CARDIOVASCULAR BIOLOGY

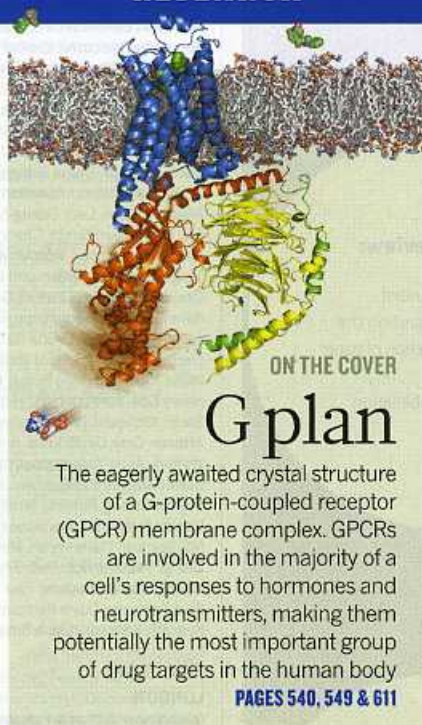
##### Heart fails without pump partner

Stabilization of the SERCA2a calcium pump by SUMOylation  
*Sudha K Shenoy & Howard A Rockman*  
 SEE LETTER P.601

#### 547 CARBON CYCLE

##### A dent in carbon's gold standard

Reassessing global carbon uptake  
*Matthias Cuntz* SEE LETTER P.579



The eagerly awaited crystal structure of a G-protein-coupled receptor (GPCR) membrane complex. GPCRs are involved in the majority of a cell's responses to hormones and neurotransmitters, making them potentially the most important group of drug targets in the human body  
**PAGES 540, 549 & 611**

### ARTICLES

#### 549 STRUCTURAL BIOLOGY Crystal structure of the $\beta_2$ adrenergic receptor–Gs protein complex

*S G F Rasmussen et al.* SEE N&V P.540

#### 556 STRUCTURAL BIOLOGY Crystal structure of nucleotide-free dynamin

*K Faelber et al.*

#### 561 STRUCTURAL BIOLOGY The crystal structure of dynamin

*M G J Ford, S Jenni & J Nunnari*

### LETTERS

#### 567 ASTRONOMY Gravitational redshift of galaxies in clusters as predicted by general relativity

*R Wojtak, S H Hansen & J Hjorth*  
 SEE N&V P.541

#### 570 ASTRONOMY The excitation of solar-like oscillations in a $\delta$ Sct star by efficient envelope convection

*V Antoci et al.*

#### 574 PHYSICS High-fidelity projective read-out of a solid-state spin quantum register

*L Robledo et al.*

#### 579 CLIMATE SCIENCE Interannual variability in the oxygen isotopes of atmospheric

#### CO<sub>2</sub> driven by El Niño

*L R Welp et al.* SEE N&V P.547

#### 583 EVOLUTION Transcriptomic analysis of avian digits reveals conserved and derived digit identities in birds

*Z Wang, R L Young, H Xue & G P Wagner*

#### 587 GENOMICS The genome of the green anole lizard and a comparative analysis with birds and mammals

*J Alföldi et al.*

#### 592 IMMUNOLOGY Innate immune recognition of bacterial ligands by NALPs determines inflammasome specificity

*E M Kofoed & R E Vance* SEE N&V P.543

#### 596 IMMUNOLOGY The NLRC4 inflammasome receptors for bacterial flagellin and type III secretion apparatus

*Y Zhao et al.* SEE N&V P.543

#### 601 CARDIOVASCULAR BIOLOGY SUMO1-dependent modulation of SERCA2a in heart failure

*C Kho et al.* SEE N&V P.546

#### 606 DEVELOPMENTAL BIOLOGY The role of Tet3 DNA dioxygenase in epigenetic reprogramming by oocytes

*T-P Gu et al.*

#### 611 STRUCTURAL BIOLOGY Conformational changes in the G protein Gs induced by the $\beta_2$ adrenergic receptor

*K Y Chung et al.* SEE N&V P.540

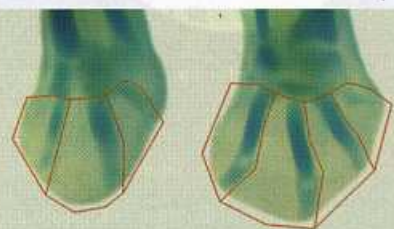
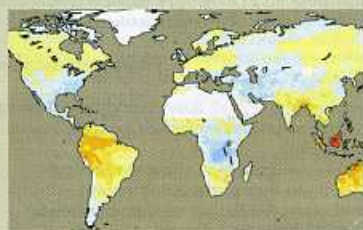
#### 616 STRUCTURAL BIOLOGY The structure and catalytic mechanism of a poly(ADP-ribose) glycohydrolase

*D Slade et al.*

### CLIMATE

## C change

The effects of El Niño climate events on plant carbon utilization. **PAGE 579**



### EVOLUTION

## Gone digital

The changing identities of avian digits during evolution. **PAGE 583**