

# CONTENTS

15 December 2011 / Vol 480 / Issue No 7377

## THIS WEEK

### EDITORIALS

#### 291 JAPAN

##### Critical mass

Events in Japan over the past year underscore the need for a science adviser to the government

#### 291 PATENTS

##### Error of judgment

European court has caused needless confusion with its pronouncements on stem-cell patents

#### 292 CLIMATE CHANGE

##### The mask slips

Durban meeting highlights divide between science and policy



### WORLD VIEW

#### 293 Watching the players at the climate poker table

Frank McDonald  
The changing face of climate negotiations

### RESEARCH HIGHLIGHTS

#### 294 SELECTIONS FROM THE SCIENTIFIC LITERATURE

Cell manipulation / Lifeless oceans / Minimal wasps / Ultra-sensitive infrared astronomy / The brain's nutrient sensor / Pollution from biofuels

### SEVEN DAYS

#### 296 THE NEWS IN BRIEF

More signs of water on Mars / Success for gene therapy to treat haemophilia / EPA slams fracking chemicals / Brazil backs forest code

## CAREERS

#### 401 RESEARCH

##### Radical rethink

Trainee researchers should be given freedom to experiment

#### 403 TURNING POINT

Religion, science and marketing do mix, says Jimmy Lin

#### 403 CAREER BRIEFS

## NEWS IN FOCUS

#### 299 POLICY

Frantic negotiations score last-minute climate deal in Durban

#### 301 PARTICLE PHYSICS

LHC results hint at Higgs particle

#### 302 ASTROPHYSICS

Kepler's cornucopia challenges model of planet formation



#### 303 IMAGING

Questions raised over whether imaging technique can enter the third dimension

#### 305 POLICY

Anne Glover named as Europe's first chief science adviser

#### 305 POLICY

Hungary overhauls its research system

## FEATURES

#### 310 STEM CELLS

##### The cell division

Oliver Brüstle's struggle to secure patent rights on stem cells

### ASTRONOMY

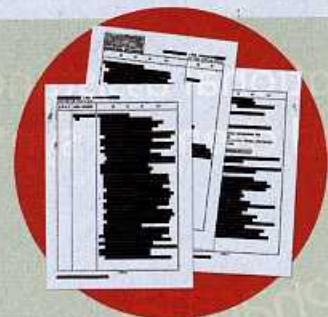
## Dawning of a new era

The spin-off benefits of South Africa's bid to host the Square Kilometre Array

AND 280



## COMMENT



### ON THE COVER

## Power play

Incidents such as the redaction of an operator's manual have convinced Tomoyuki Taira and Yukio Hatoyama that Fukushima Daiichi should be nationalized [PAGE 313](#)

#### 315 HIGH-ENERGY PHYSICS

##### Cutting science's electricity bill

Thomas Parker  
Major research facilities can be green

### BOOKS & ARTS

#### 317 MOLECULAR BIOLOGY

##### Seed of revolution

Michael A Goldman

#### 318 PHILOSOPHY

##### Life emergent

Evan Thompson

#### 319 GEOLOGY

##### High on Antarctica

Gabrielle Walker

#### 320 MATHEMATICS

##### Drowning by numbers

Stefan Michalowski & Georgia Smith

### CORRESPONDENCE

321 Farming emissions / Europe's network needs / Lemaître's universe / GM in India / Human variance

### OBITUARY

#### 322 Har Gobind Khorana (1922–2011)

Uttam L RajBhandary

### FUTURES

#### 406 Extremes

Rachel Swirsky



# CONTENTS

15 December 2011 / Vol 480 / Issue No 7377

## RESEARCH

### NEW ONLINE

- 323 Papers published this week at [nature.com](http://nature.com)

### NEWS & VIEWS

#### 324 VACCINOLOGY

##### A sweet cleft in HIV's armour

Structure of the PG9 antibody bound to a minimal antigenic mimic  
*Quentin J Sattentau* [SEE ARTICLE P.336](#)

#### 325 SOFT MATERIALS

##### Marginal matters

Probing the nonlinear physics of soft materials  
*Vincenzo Vitelli & Martin van Hecke*  
[SEE LETTER P.355](#)

#### 326 SUPRAMOLECULAR CHEMISTRY

##### Molecular wires get connected

Self-assembly of tubular nanowire junctions  
*Dario M Bassani*

#### 328 ASTROPHYSICS

##### Cosmic explosions under scrutiny

The progenitor of type Ia supernova SN 2011fe  
*Mario Hamuy* [SEE LETTERS P.344 & P.348](#)

#### 329 CANCER

##### A drug-resistant duo

Oncoprotein dimerization and drug resistance in melanoma  
*Hugo Lavoie & Marc Therrien*  
[SEE LETTER P.387](#)

### ASTRONOMY

## SN 2011fe

Archival images throw old light on an important new supernova. [PAGES 348](#)



### MICROBIOLOGY

## On the nose

The pathogen that has hit bat populations in North America. [PAGE 376](#)

### ARTICLES

- 331 **NEUROSCIENCE** A disinhibitory microcircuit for associative fear learning in the auditory cortex  
*J J Letzkus et al.*

- 336 **IMMUNOLOGY** Structure of HIV-1 gp120 V1/V2 domain with broadly neutralizing antibody PG9  
*J S McLellan et al.* [SEE N&V P.324](#)

### LETTERS

- 344 **ASTRONOMY** Supernova SN 2011fe from an exploding carbon-oxygen white dwarf star  
*P E Nugent et al.* [SEE N&V P.328](#)
- 348 **ASTRONOMY** Exclusion of a luminous red giant as a companion star to the progenitor of supernova SN 2011fe  
*W Li et al.* [SEE N&V P.328](#)
- 351 **PHYSICS** Microwave amplification with nanomechanical resonators  
*F Massel et al.*
- 355 **PHYSICS** Jamming by shear  
*D Bi, J Zhang, B Chakraborty & R P Behringer* [SEE N&V P.325](#)
- 359 **EARTH SCIENCE** Messinian salinity crisis regulated by competing tectonics and erosion at the Gibraltar arc  
*D Garcia-Castellanos & A Villaseñor*
- 364 **EVOLUTION** Resolving the evolutionary relationships of molluscs with phylogenomic tools  
*S A Smith et al.*
- 368 **MICROBIOLOGY** Metagenomic analysis

of a permafrost microbial community reveals a rapid response to thaw  
*R Mackelprang et al.*

- 372 **NEUROSCIENCE** Sustained axon regeneration induced by co-deletion of PTEN and SOCS3  
*F Sun et al.*

- 376 **MICROBIOLOGY** Experimental infection of bats with *Geomyces destructans* causes white-nose syndrome  
*J M Lorch et al.*

- 379 **STRUCTURAL BIOLOGY** HIV-1 restriction factor SAMHD1 is a deoxynucleoside triphosphate triphosphohydrolase  
*D C Goldstone et al.*

- 383 **EVOLUTION** Regulatory evolution through divergence of a phosphoswitch in the transcription factor CEBPB  
*V J Lynch, G May & G P Wagner*

- 387 **CANCER** RAF inhibitor resistance is mediated by dimerization of aberrantly spliced BRAF (V600E)  
*P I Poulikakos et al.* [SEE N&V P.329](#)

- 391 **MOLECULAR BIOLOGY** Chromatin-associated RNA interference components contribute to transcriptional regulation in *Drosophila*  
*F M Cernilogar et al.*

- 396 **STRUCTURAL BIOLOGY** Structure of full-length *Drosophila* cryptochrome  
*B D Zoltowski et al.*

### IMMUNOLOGY

## Anti-HIV

Antibody PG9 targets a gp120 immune avoidance device. [PAGE 336](#)

