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Your guide to global scientific events and courses in 2015-2016

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The microbes in urban environments emerge from the shadows

#### 400 ECOLOGY

Bacteria trialled as a way to protect bats from white-nose syndrome

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Astronomers claim to have glimpsed first-generation stars

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Sentinel mission struggling to find funds to catalogue near-Earth asteroids

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Earth science embroiled in conflict-of-interest debate

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Will Paul Nurse's gamble on the Francis Crick Institute pay off? **PAGE 406**

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##### The hard science of oxytocin

Researchers dispel the myth of a 'cuddle' chemical

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## Science can't solve it

Society, not just researchers, must decide whether advances are ready for public use, says Daniel Sarewitz **PAGE 413**



#### 415 BIOTECHNOLOGY

##### Move beyond differences

*Charis Thompson*

Effective governance of gene-editing research will require a melding of perspectives

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421 Papers published this week at nature.com

### NEWS & VIEWS

#### 422 ASTROPHYSICS

##### Dust-poor galaxies at early times

Galaxies of a distant era contained less dust than expected  
*Veronique Buat* SEE LETTER P.455

#### 423 NEURODEGENERATION

##### Evolved protection against human prions

A homozygous genetic variant protects against human prion diseases  
*Glenn Telling* SEE LETTER P.478

#### 424 PLANT SCIENCE

##### Precision positioning with peptides

Stomatal patterning is regulated by competition between two peptides  
*Sacco de Vries* SEE ARTICLE P. 439

#### 425 CLIMATE SCIENCE

##### The dynamics of temperature extremes

Temperature extremes linked to atmospheric circulation patterns  
*Theodore G Shepherd* SEE LETTER P.465

#### 427 BIOCHEMISTRY

##### Unexpected role for vitamin B2

A cofactor derived from riboflavin  
*Catherine F Clarke & Christopher M Allan* SEE LETTERS P.497 & P.502

#### 428 CELL METABOLISM

##### Sugar for sight

RdCVF protein increases glucose uptake in photoreceptors  
*Connie Cepko & Claudio Punzo*

### REVIEW

#### 431 ECOLOGY The changing form of Antarctic biodiversity

*S L Chown et al.*

### ARTICLES

439 **PLANT SCIENCES** Competitive binding of antagonistic peptides fine-tunes stomatal patterning  
*J S Lee et al.* SEE N&V P.424

444 **CARDIOVASCULAR DISEASE** HIF-driven *SF3B1* induces KHK-C to enforce fructolysis and heart disease  
*P Mirtschink et al.*

450 **CELL BIOLOGY** Atomic structure of the



ON THE COVER

## Double protection

This adapted image shows condensed mitotic chromosomes (blue); co-localization of telomeric TTAGGG repeats (green) and a DNA damage marker (red) indicates that telomeres are recognized as damage in cells that spontaneously arrest in mitosis during crisis. Cells forming a tumour must overcome two barriers — senescence and a proliferative block known as crisis. **PAGE 492**

### APC/C and its mechanism of protein ubiquitination

*L Chang, Z Zhang, J Yang, S H McLaughlin & D Barford*

### LETTERS

455 **ASTROPHYSICS** Galaxies at redshifts 5 to 6 with systematically low dust content and high [C II] emission  
*P L Capak et al.* SEE N&V P.422

459 **PLANETARY SCIENCE** A giant comet-like cloud of hydrogen escaping the warm Neptune-mass exoplanet GJ 436b  
*D Ehrenreich et al.*

462 **SEMICONDUCTORS** Linking high harmonics from gases and solids  
*G Vampa et al.*

465 **ATMOSPHERIC SCIENCE** Contribution of changes in atmospheric circulation patterns to extreme temperature trends  
*D E Horton et al.* SEE N&V P. 425

470 **EVOLUTION** Sexual selection protects against extinction  
*A J Lumley et al.*

474 **STEM CELLS** PPAR- $\alpha$  and glucocorticoid receptor synergize to promote erythroid progenitor self-renewal  
*H-Y Lee et al.*

478 **NEURODEGENERATION** A naturally occurring variant of the human prion protein completely prevents prion disease  
*E A Asante et al.* SEE N&V P.423

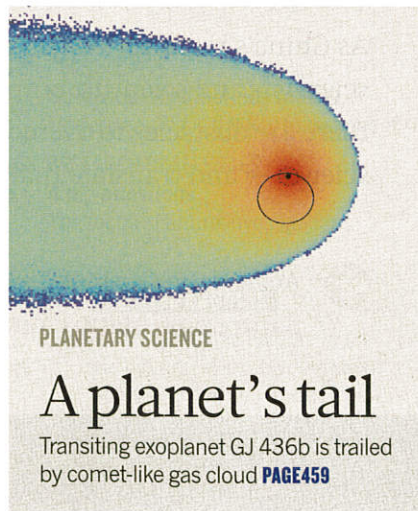
482 **CELL BIOLOGY** The *Drosophila* TNF receptor Grindelwald couples loss of cell polarity and neoplastic growth  
*D S Andersen et al.*

487 **IMMUNOLOGY** Viraemia suppressed in HIV-1-infected humans by broadly neutralizing antibody 3BNC117  
*M Caskey et al.*

492 **CELL BIOLOGY** Cell death during crisis is mediated by mitotic telomere deprotection  
*M T Hayashi, A J Cesare, T Rivera & J Karlseder*

497 **BIOCHEMISTRY** New cofactor supports  $\alpha,\beta$ -unsaturated acid decarboxylation via 1,3-dipolar cycloaddition  
*K A P Payne et al.* SEE N&V P.427

502 **BIOCHEMISTRY** UbiX is a flavin prenyltransferase required for bacterial ubiquinone biosynthesis  
*M D White et al.* SEE N&V P.427



PLANETARY SCIENCE

## A planet's tail

Transiting exoplanet GJ 436b is trailed by comet-like gas cloud **PAGE 459**

ILLUSTRATION BY JAMIE SIMON, THE SALK INSTITUTE