

CONTENTS

28 June 2012 / Vol 486 / Issue No 7404

THIS WEEK

EDITORIALS

439 OPEN ACCESS

Openness costs

Making data freely available will require a shift in business models

439 EARTH SUMMIT

A first step

Could the latest Earth conference be the start of a new journey?

440 ANTIBIOTICS

Pig out

Countries should follow Denmark and slash antibiotic use in farming



WORLD VIEW

441 Open your minds and share your results

Geoffrey Boulton
Publicly funded research should be treated as a public resource

RESEARCH HIGHLIGHTS

442 SELECTIONS FROM THE SCIENTIFIC LITERATURE

Turtles fossilized in flagrante / 'Ring' species found in plants / Diversity link to languages / A puzzling exoplanet pair / Martian snow / Information rays

SEVEN DAYS

444 The news in brief

United Nations to set up international science board / Lonesome George dies / Royal Society condemns data hoarding / Japanese people protest against restart of nuclear reactors



CAREERS

559 GRANT APPLICATIONS

Find me the money

Are funding consultants the answer for the cash-strapped researcher?

561 CAREERS NEWS

NEWS IN FOCUS



447 ENVIRONMENT

Rio+20's ambitions collide with global wealth gap

449 BIOSECURITY

Work on H5N1 avian flu virus to restart — along with controversy

450 CLIMATE

In North Carolina, even measuring sea-level rise is the stuff of politics

451 SPECIES RECOVERY

Why threatened California condor still eats lead

452 POLITICS

Presidential candidates promise to boost spending on Mexican science

453 GENETIC ENGINEERING

Transgenic-pig disease models pose a tricky problem for regulators

454 GENETICS

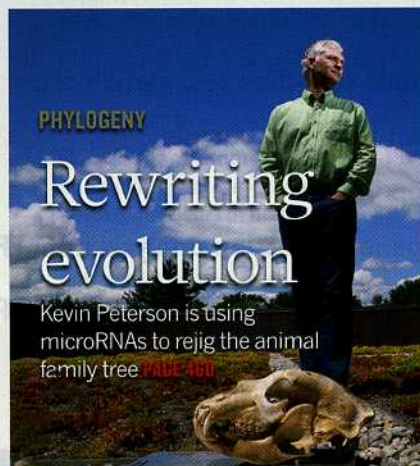
Lawsuits complicate debut of non-invasive fetal tests

FEATURES

456 INFLUENZA

Five questions on H5N1

What do we still need to know about the pandemic potential of avian flu?



PHYLOGENY

Rewriting evolution

Kevin Peterson is using microRNAs to rejig the animal family tree **PAGE 460**

COMMENT

463 ENVIRONMENT

Save the Baltic Sea

Daniel J Conley

Forget geoengineering, removing nutrients at source will save the Baltic



465 AGRICULTURE

Get pigs off antibiotics

Frank Aarestrup

Danish farmers have given up using antibiotics as growth promoters

BOOKS & ARTS

468 PHYSICS

A shining life

Frank Close

469 BOOKS IN BRIEF

470 CITIES

Metropolitan mash-up

Anthony King

471 FICTION

Ray Bradbury, an appreciation

David Brin

472 Q&A

The sound catcher

Imogen Heap uses Tom Mitchell's high-tech gloves to both write and play new music



CORRESPONDENCE

473 Bring back DDT / Breast best for cancer prevention / Smart drugs survey / Supernova over Otford

OBITUARY

474 Andrew Fielding Huxley (1917–2012)
Yale E Goldman, Clara Franzini-Armstrong & Clay M Armstrong

FUTURES

564 Celestial bodies

Ken Liu

CONTENTS

28 June 2012 / Vol 486 / Issue No 7404

RESEARCH

NEW ONLINE

475 Papers published this week at nature.com

NEWS & VIEWS

476 SOLAR PHYSICS

Swirls in the corona

Energy conduits in the Sun's outer atmosphere

Stephen J Bradshaw [SEE LETTER P.505](#)

477 AGEING

A healthy diet for stem cells

Calorie restriction preserves the functions of stem cells

Fresnida J Ramos & Matt Kaeberlein

[SEE ARTICLE P.490](#)

478 ORGANIC CHEMISTRY

Directors extend their reach

Functionalization at the *meta*-position of benzene rings

Matthew O Kitching & Victor Snieckus

[SEE LETTER P.518](#)

479 PHARMACOLOGY

A false sense of non-self

Drug-induced hypersensitivity can result from altered antigen display

Ellis L Reinherz [SEE LETTER P.554](#)

481 NEUROSCIENCE

Genes and human brain evolution

A gene duplication may have helped to make our brains big and adaptable

Daniel H Geschwind
& Genevieve Konopka

482 CANCER

Pinprick diagnostics

Rare drug-resistant clones detected in circulating tumour DNA

Eduardo Vilar & Josep Tabernero

[SEE LETTERS P.532 & P.537](#)

ARTICLES

- 485 **ECOLOGY** Dimensionality of consumer search space drives trophic interaction strengths
S Pawar, A I Dell & V M Savage

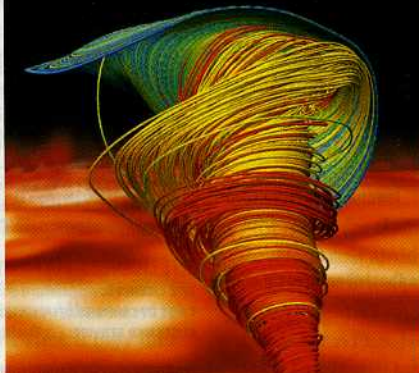
- 490 **STEM CELLS** mTORC1 in the Paneth cell niche couples intestinal stem-cell function to calorie intake
Ö H Yilmaz et al. [SEE N&V P.477](#)

- 496 **GENOMICS** A map of nucleosome positions in yeast at base-pair resolution
K Brogaard, L Xi, J-P Wang & J Widom

ON THE COVER

Solar twister

A visualization of a swirling magnetic disturbance connecting the Sun's surface with the outer chromosphere. Heat transfer via these structures, resembling super-tornadoes under solar conditions, may be the mechanism that heats the outer solar atmosphere to temperatures of over a million degrees kelvin, hotter than the solar surface. [PAGES 476 & 505](#)



LETTERS

- 502 **ASTRONOMY** The signature of orbital motion from the dayside of the planet τ Boötis b
M Brogi et al.
- 505 **ASTRONOMY** Magnetic tornadoes as energy channels into the solar corona
S Wedemeyer-Böhm et al. [SEE N&V P.476](#)
- 509 **NUCLEAR PHYSICS** The limits of the nuclear landscape
J Erler et al.
- 513 **PHYSICS** Fractal morphology, imaging and mass spectrometry of single aerosol particles in flight
N D Loh et al.
- 518 **ORGANIC CHEMISTRY** Activation of remote *meta*-C-H bonds assisted by an end-on template
D Leow, G Li, T-S Mei & J-Q Yu
[SEE N&V P.478](#)
- 523 **PALAEONTOLOGY** Three-dimensional limb joint mobility in the early

tetrapod *Ichthyostega*

S E Pierce, J A Clack & J R Hutchinson

- 527 **GENOMICS** The bonobo genome compared with the chimpanzee and human genomes
K Prüfer et al.

- 532 **CANCER** Emergence of *KRAS* mutations and acquired resistance to anti-EGFR therapy in colorectal cancer
S Misale et al. [SEE N&V P.482](#)

- 537 **CANCER** The molecular evolution of acquired resistance to targeted EGFR blockade in colorectal cancers
L A Diaz Jr et al. [SEE N&V P.482](#)

- 541 **MOLECULAR BIOLOGY** Autoregulation of microRNA biogenesis by *let-7* and Argonaute
D G Zisoulis, Z S Kai, R K Chang & A E Pasquinelli

- 545 **IMMUNOLOGY** Generalized Lévy walks and the role of chemokines in migration of effector CD8⁺ T cells
T H Harris et al.

- 549 **IMMUNOLOGY** PPAR- γ is a major driver of the accumulation and phenotype of adipose tissue T_{reg} cells
D Cipolletta et al.

- 554 **IMMUNOLOGY** Immune self-reactivity triggered by drug-modified HLA-peptide repertoire
P T Illing et al. [SEE N&V P.479](#)

PALAEONTOLOGY

Shore thing

Ichthyostega was an inelegant mover when out of the water.

[PAGE 523](#)

