

CONTENTS

28 April 2011 / Vol 472 / Issue No 7344

THIS WEEK

EDITORIALS

389 NUCLEAR SAFETY

A watchdog with bite

The International Atomic Energy Agency should be granted more powers

389 BIOPHARMACEUTICALS

A united front

Drug companies need to share data on viral contamination

390 CONSERVATION

Seeing REDD

Plans to preserve forests must include support for local populations

WORLD VIEW

391 End the wasteful tyranny of reviewer experiments

Hide Ploegh

Peer review is impeding the publication process with requests for needless additional lab work

RESEARCH HIGHLIGHTS

392 SELECTIONS FROM THE SCIENTIFIC LITERATURE

Small-scale X-ray images / New hepatitis C drug targets / Antibiotics' little helpers / A stem-cell patch for the heart / Cytokine CCL18 aids metastasis

SEVEN DAYS

394 THE NEWS IN BRIEF

Mekong dam in limbo / LHC sets record for beam intensity / Italy halts plans for new nuclear reactors / Allen Telescope's hunt for aliens comes to an end

CAREERS

505 NUCLEAR ENERGY

Defying disaster

Despite the problems at Fukushima, there are plenty of job opportunities in the nuclear industry

506 CAREERS BRIEFS

506 TURNING POINT

Fusion energy research is alive and well, says Ian Chapman

NATUREJOBS ADVERTISING FEATURE

Spotlight on Texas

NEWS IN FOCUS



397 ATOMIC POWER

International Atomic Energy Agency's remit called into question in wake of Fukushima accident

398 CARBON SEQUESTRATION

Rival camps at odds over the geology of CO₂ sequestration in US FutureGen initiative

400 NUCLEAR SAFETY

Mapping exercise reveals populations most at risk from accidents at nuclear power plants

402 SPACE SCIENCE

Exoplanet hunters seek to beat NASA's budget blues by joining forces with project on cosmic origins

403 STEM CELLS

California institute draws up plans for bank to store wealth of adult-derived stem-cell lines now available



ANCIENT DNA

Tut tut

New sequencing techniques could resolve dispute over validity of DNA sequence data from Egyptian mummy **PAGE 404**

COMMENT

407 EARTH SCIENCE

Shake-up time for Japanese seismology

Robert J Geller

410 HEALTH AND MEDICINE

The rise of people power

Roger Chafe, Karen B Born, Arthur S Slutsky & Andreas Laupacis

BOOKS & ARTS

413 CLIMATE CHANGE

Lands' End to the Arctic

Henry Pollack

FICTION

Telling tails

The island fox is a central character in *When the Killing's Done*, reviewed by Emma Marris **PAGE 414**



415 BOOKS IN BRIEF

416 PSYCHOLOGY

The empathy gap

Stephanie Preston

417 ART

Blurring the boundaries

Deborah Dixon, Harriet Hawkins & Mriil Ingram

CORRESPONDENCE

418 In support of stem-cell patents / X-ray astronomy's plan B / PIN code aims to protect privacy of donors to biobanks / Scientific diaspora is key for Arab world

FUTURES

508 A good time

Shelly Li

H. PUNZAP

CONTENTS

28 April 2011 / Vol 472 / Issue No 7344

RESEARCH

NEW ONLINE

419 Papers published this week at nature.com

NEWS & VIEWS

420 EARTH SCIENCE

Lithosphere today...

An explanation for uplift of the Colorado plateau

George Zandt & Peter Reiners

SEE LETTER P.461

421 IMMUNOLOGY

A helping hand against autoimmunity

Drugs to inhibit the damaging effects of T_H17 cells in mice

Anton M Jetten SEE LETTERS P.486

& P.491

423 MATERIALS SCIENCE

Colour without colourants

Exploiting the principles of structural colour used by nature

Paul V Braun

424 ANIMAL BEHAVIOUR

Large-scale cooperation

Elephant duos on the pull

Amanda M Seed & Keith Jensen

425 MATERIALS CHEMISTRY

Polymer networks take a bow

Prospects for mechanophotopatterning

Wilhelm T S Huck

426 ASTRONOMY

A new spin on the first stars

First-generation stellar behaviour

Jason Tumlinson SEE LETTER P.454

427 NEUROSCIENCE

Sleepy neurons?

Sleep patterns can occur in localized regions of the brain

Christopher S Colwell SEE ARTICLE P.443

REVIEW

429 OCEANOGRAPHY On the role of the

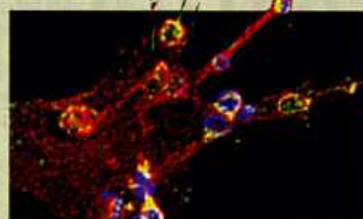
Agulhas system in ocean circulation and climate

L M Beal, W P M De Ruijter, A Biastoch, R Zahn & SCOR/WCRP/IAPSO Working Group 136

ARTICLES

437 NEUROSCIENCE *Shank3* mutant mice display autistic-like behaviours and striatal dysfunction

J Peça et al.



ON THE COVER

Guard cells

A bone marrow-derived macrophage (red/green) engages invading yeast (blue). The mechanism that allows the innate immune system to distinguish between surface ligands of microbes and similar ligands in solution is revealed. **PAGE 471**

443 NEUROSCIENCE Local sleep in awake rats

V V Vyazovskiy et al. SEE N&V P.427

448 STRUCTURAL BIOLOGY Structure and mechanism of the chromatin remodelling factor ISW1a

K Yamada et al.

LETTERS

454 ASTRONOMY Imprints of fast-rotating massive stars in the Galactic Bulge

C Chiappini et al. SEE N&V P.426

458 PHYSICS Superconductor-insulator transition in $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$ at the pair quantum resistance

A T Bollinger et al.

461 GEOPHYSICS Continuing Colorado plateau uplift by delamination-style convective lithospheric downwelling

A Levander et al. SEE N&V P.420

466 NEUROSCIENCE Increasing adult hippocampal neurogenesis is sufficient to improve pattern separation

A Sahay et al.

471 IMMUNOLOGY Activation of the innate immune receptor Dectin-1 upon formation of a 'phagocytic synapse'

H S Goodridge et al.

476 IMMUNOLOGY TLR signalling augments

macrophage bactericidal activity through mitochondrial ROS

A P West et al.

481 IMMUNOLOGY A diverse range of gene products are effectors of the type I interferon antiviral response

J W Schoggins et al.

486 IMMUNOLOGY Digoxin and its derivatives suppress T_H17 cell differentiation by antagonizing ROR γ t activity

J R Huh et al. SEE N&V P.421

491 IMMUNOLOGY Suppression of T_H17 differentiation and autoimmunity by a synthetic ROR ligand

L A Solt et al. SEE N&V P.421

495 IMMUNOLOGY Differential microRNA regulation of *HLA-C* expression and its association with HIV control

S Kulkarni et al.

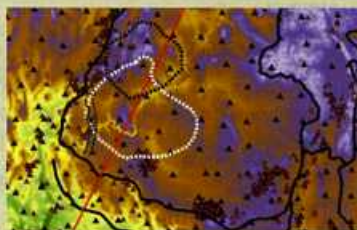
499 BIOCHEMISTRY A system for the continuous directed evolution of biomolecules

K M Esvelt, J C Carlson & D R Liu

GEOPHYSICS

On the up

The processes that put the Grand Canyon and Colorado plateau where they are today. **PAGES 420 & 461**



504 ADDENDUM Water and its influence on the lithosphere–asthenosphere boundary

D H Green, W O Hibberson, I Kovács & A Rosenthal

504 ERRATUM Extended megadroughts in the southwestern United States during Pleistocene interglacials

P J Fawcett et al.