

CONTENTS

22 January 2015 / Vol 517 / Issue No 7535

THIS WEEK

EDITORIALS

411 SYNTHETIC BIOLOGY

Kept on a leash

A nutritional control on GM organisms should clear the way for research

411 EARTH SCIENCE

Down to earth

It's time for scientists to get their hands dirty and investigate mud

412 SPACE EXPLORATION

Lost and found

The discovery of Beagle 2 on Mars offers hope for other misplaced artefacts

WORLD VIEW

413 Risk analysis is key to an effective terror response

Erwann Michel-Kerjan

Leaders must collaborate with risk strategists to strengthen our resilience to terrorism

RESEARCH HIGHLIGHTS

414 SELECTIONS FROM THE SCIENTIFIC LITERATURE

Muscle model / Where nitrogen is from / Turtles' magnetic compass / Happy days at 'uni' / Forests

undermined / A history of tuberculosis / More ice loss

SEVEN DAYS

416 THE NEWS IN BRIEF

Obesity tool wins approval / European Parliament strikes GM deal / Nuclear blast pitched as start of Anthropocene / Economic risks of extreme weather

CAREERS

517 TIME MANAGEMENT

Seize the moment

When making the leap from postdoc to principal investigator don't forget to make some time for yourself

519 TURNING POINT

Chemistry and fashion are inextricably linked, says chemist-turned-fashion designer Swati Padmaraj

NEWS IN FOCUS

419 TERRORISM

Lack of data hampers attempts to model the risk of terrorist attacks

420 TERRORISM

Psychologists seek ways to undo radicalization



422 COSMOLOGY

Is the most popular theory on dark matter about to WIMP out?

423 SYNTHETIC BIOLOGY

Artificial amino acid acts as biocontainment for GM microbes

424 METEOROLOGY

Major drive aims to catch data on atmospheric rivers

FEATURES

426 AGEING RESEARCH

Blood to blood

How young blood can help rejuvenate old tissue



ASTRONOMY

Laser focus

Claire Max's work with adaptive optics has transformed the capabilities of telescopes [PAGE 430](#)

COMMENT

433 POLICY

Four gaps in China's new environmental law

Bo Zhang & Cong Cao

The new law was a necessary first step — now comes the challenging task of making it effective

BOOKS & ARTS



BIG DATA

Stealth control

Steven Aftergood examines the hidden impacts of personal data collection [PAGE 435](#)

436 AGEING

Eternal obsession

Monya Baker

437 BOOKS IN BRIEF

CORRESPONDENCE

438 Europe's regions still lag in research / Role of indirect costs in US funding / Limitations of citizen science / Boosting transitional research



FUTURES

522 Treatment naïve

Steve Zisson

CONTENTS

22 January 2015 / Vol 517 / Issue No 7535

RESEARCH

NEW ONLINE

439 Papers published this week at nature.com

NEWS & VIEWS

440 CATALYSIS

Gold unleashes the power of three
A mild method for making gold(III) catalysts

Christopher M B K Kourra & Nicolai Cramer [SEE ARTICLE P.449](#)

441 CELL DIVISION

Hold on and let go

An evolutionarily conserved role for MEIKIN protein during meiosis I

Kikuë Tachibana-Konwalski

[SEE ARTICLE P.466](#)

442 ANTIBIOTICS

An irresistible newcomer

The lipid-targeting antibiotic teixobactin induces no detectable resistance

Gerard Wright [SEE ARTICLE P.455](#)

444 ASTRONOMY

Cosmic fog and smog

Evidence that most 'metals' reside far from galaxies

Molly S Peeples

445 PALAEOCLIMATE

Monsoon matters

How the Asian summer monsoon has varied during the past 150,000 years

Bronwen Konecny

446 CELL BIOLOGY

On the endocytosis rollercoaster

Characterization of a fast, clathrin-independent mode of endocytosis

Volker Haucke

[SEE ARTICLE P.460 & LETTER P.493](#)

ARTICLES

449 ORGANIC CHEMISTRY Stable gold(III) catalysts by oxidative addition of a carbon-carbon bond

C-Y Wu, T Horibe, C B Jacobsen & F D Toste [SEE N&V P.440](#)

455 DRUG DISCOVERY A new antibiotic kills pathogens without detectable resistance

L L Ling et al. [SEE N&V P.442](#)

460 CELL BIOLOGY Endophilin marks and controls a clathrin-independent endocytic pathway

E Boucrot et al. [SEE N&V P.446](#)



ON THE COVER

Glittering prize

The Esquel pallasite — arguably the most beautiful meteorite known — consists of gem-quality olivine crystals embedded in a metallic matrix. High-resolution magnetic imaging of the iron-nickel matrix of the Esquel and Ilmilac pallasites provides a time series that captures the dying moments of the magnetic field generated as the liquid core of the parent body solidified. [PAGE 472](#)

466 CELL BIOLOGY Meikin is a conserved regulator of meiosis-I-specific kinetochore function

J Kim et al. [SEE N&V P.441](#)

LETTERS

472 PLANETARY SCIENCE Long-lived magnetism from solidification-driven convection on the pallasite parent body

J F J Bryson et al.

476 OPTICS AND PHOTONICS Compositional engineering of perovskite materials for high-performance solar cells

N J Jeon et al.

481 CLIMATE SCIENCES Probabilistic reanalysis of twentieth-century sea-level rise

C C Hay, E Morrow, R E Kopp & J X Mitrovica

485 PALAEOLOGY A basal ichthyosauriform with a short snout from the Lower Triassic of China

R Motani et al.

489 CANCER The mutational landscapes of genetic and chemical models of Kras-driven lung cancer

P M K Westcott et al.

493 CELL BIOLOGY Endophilin-A2 functions in membrane scission in clathrin-independent endocytosis

H-F Renard et al. [SEE N&V P. 446](#)

497 CANCER mTORC1-mediated translational elongation limits intestinal tumour initiation and growth

W J Faller et al.

501 IMMUNOLOGY IgG1 protects against renal disease in a mouse model of cryoglobulinaemia

R T Strait et al.

505 VIROLOGY Structure of the immature HIV-1 capsid in intact virus particles at 8.8 Å resolution

F K M Schur et al.

509 BIOCHEMISTRY Structure and mechanism of the tRNA-dependent lantibiotic dehydratase NisB

M A Ortega et al.

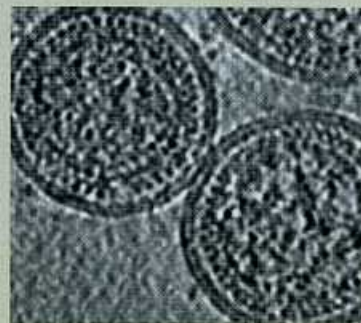
513 STRUCTURAL BIOLOGY Reductive dehalogenase structure suggests a mechanism for B12-dependent dehalogenation

K A P Payne et al.

VIROLOGY

Going viral

The structure of the protein shell of immature HIV-1 — very different from the mature virus. [PAGE 505](#)



ESQUEL IMAGE: NATURAL HISTORY MUSEUM, LONDON