

CONTENTS

28 July 2016 / Vol 535 / Issue No 7613

THIS WEEK

EDITORIALS

465 FUNDING

Prove the worth of basic research

The world should follow Europe's lead in support for fundamental science

465 MEDICAL RESEARCH

Cures for all

US lawmakers must provide support and incentives for paediatric trials

466 METRICS

On impact

Nature journals are diversifying their impact indicators

WORLD VIEW

467 **Resilient British science will withstand Brexit**

Ehsan Masood

But UK researchers need to make themselves heard by the government

RESEARCH HIGHLIGHTS

468 SELECTIONS FROM THE SCIENTIFIC LITERATURE

Kepler back on song / We can see a single photon / Honey hunt / Ancient airs / Life under the ice / Finding LUCA



SEVEN DAYS

470 THE NEWS IN BRIEF

Mexico protects vaquita / Clinton picks running mate / Turkey clampdown spreads to education

CAREERS

581 COLLABORATIONS

Partners in knowledge

The art of scientific collaboration with indigenous communities

583 COLUMN

Freedom to range

Gina Maffey

The trials, tribulations and ultimate rewards of interdisciplinary research

NEWS IN FOCUS



473 US ELECTION

Presidential candidates start to lay out science priorities

474 ASTRONOMY

NASA to sniff out alien 'biosignatures'

475 EPIDEMIOLOGY

Brazil looks deeper into clustering of Zika-related birth defects

476 BIOMEDICINE

China prepares to inject people with gene-edited cells

477 EUROPEAN UNION

European Research Council announces unusual impact evaluation

478 CRYPTOGRAPHY

Space-based quantum experiments set stage for secure communication

FEATURES



CLIMATE

The ice historians

Glaciologists trawl photo archives to predict Greenland's future

PAGE 480

484 MICROBIOLOGY

The beer geeks

A Belgian lab works on breeding the perfect brewing yeast

COMMENT



POLITICS

Lessons from Brexit

Research leaders lay out their views on how scholars can contribute in these schismatic times **PAGE 487**

BOOKS & ARTS



490 SCIENCE FICTION

The science that fed *Frankenstein*

Richard Holmes

491 BOOKS IN BRIEF

CORRESPONDENCE

493 Orangutans on the brink / Biology preprint quality / Panel of panels / An avoidable extinction

FUTURES

586 Self-limited

Filip Wiltgren



CONTENTS

28 July 2016 / Vol 535 / Issue No 7613

RESEARCH

NEW ONLINE

495 Papers published this week at nature.com

NEWS & VIEWS

496 HUMAN PERCEPTION

Amazon music

An isolated society perceives music differently from Western listeners
Robert Zatorre [SEE LETTER P.547](#)

497 CLIMATE SCIENCE

Unexpected fix for ocean models

Ocean-atmosphere coupling improves simulations of the Kuroshio Extension
Kathryn A Kelly & LuAnne Thompson
[SEE LETTER P.533](#)

498 GENETICS

Mitochondrial DNA in evolution and disease

Variation in mitochondrial DNA alters physiology and lifespan in mice
Douglas C Wallace [SEE LETTER P.561](#)

500 SOLAR PHYSICS

Dynamo theory questioned

X-ray emissions from slowly rotating, fully convective stars
Paul Charbonneau [SEE LETTER P.526](#)

501 MICROBIOLOGY

Antibiotics right under our nose

Antibiotics are produced by bacteria resident in the human nose
Kim Lewis & Philip Strandwitz
[SEE ARTICLE P.511](#)

502 IN RETROSPECT

Thirty-five years of endless cell potential

The isolation of pluripotent stem cells revolutionized mammalian biology
M Azim Surani

ARTICLES

505 **NEUROSCIENCE** Rapid signalling in distinct dopaminergic axons during locomotion and reward
M W Howe & D A Dombeck

511 **MICROBIOLOGY** Human commensals producing a novel antibiotic impair pathogen colonization
A Zipperer et al. [SEE N&V P.501](#)

517 **STRUCTURAL BIOLOGY** Structural basis of Smoothed regulation by its extracellular domains
E F X Byrne et al.



ON THE COVER

The sound of music

Superimposed frequency spectra of two musical intervals, one consonant (the perfect fifth) and one dissonant (the tritone). Josh McDermott and colleagues tested the idea that the aesthetic contrast between consonance and dissonance is biologically determined by conducting experiments in remote areas of the Bolivian Amazon rainforest, working with the Tsimane', an indigenous society still isolated from Western culture. [PAGES 496 & 547](#)

LETTERS

523 **ASTROPHYSICS** Suppression of star formation in dwarf galaxies by photoelectric grain heating feedback
J C Forbes, M R Krumholz, N J Goldbaum & A Dekel

526 **ASTROPHYSICS** Solar-type dynamo behaviour in fully convective stars without a tachocline
N J Wright & J J Drake [SEE N&V P.500](#)

529 **MATERIALS SCIENCE** Combinatorial design of textured mechanical metamaterials
C Coullais, E Teomy, K de Reus, Y Shokef & M van Hecke

533 **CLIMATE SCIENCE** Western boundary currents regulated by interaction between ocean eddies and the atmosphere
X Ma et al. [SEE N&V P.497](#)

538 **SEISMOLOGY** High-resolution seismic constraints on flow dynamics in

the oceanic asthenosphere
P-Y P Lin et al.

542 **EVOLUTION** A somitic contribution to the apical ectodermal ridge is essential for fin formation
W Masselink et al.

547 **PERCEPTION** Indifference to dissonance in native Amazonians reveals cultural variation in music perception
J H McDermott, A F Schultz, E A Undurraga & R A Godoy
[SEE N&V P.496](#)

551 **NEUROSCIENCE** Transfer of mitochondria from astrocytes to neurons after stroke
K Hayakawa et al.

556 **IMMUNOLOGY** HIV-1 antibody 3BNC117 suppresses viral rebound in humans during treatment interruption
J F Scheid et al.

561 **GENETICS** Mitochondrial and nuclear DNA matching shapes metabolism and healthy ageing
A Latorre-Pellicer et al. [SEE N&V P.498](#)

566 **MOLECULAR BIOLOGY** Sliding sleeves of XRCC4-XLF bridge DNA and connect fragments of broken DNA
I Brouwer et al.

570 **MOLECULAR BIOLOGY** Dynamics of ribosome scanning and recycling revealed by translation complex profiling
S K Archer, N E Shirokikh, T H Beilharz & T Preiss

575 **EPIGENETICS** Structural organization of the inactive X chromosome in the mouse
L Giorgetti et al.

580 **CORRIGENDUM** An observational radiative constraint on hydrologic cycle intensification
A M DeAngelis, X Qu, M D Zelinka & A Hall

580 **CORRIGENDUM** Inactivation of PI(3)K p110 δ breaks regulatory T-cell-mediated immune tolerance to cancer
K Ali et al.

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

J H MCDERMOTT ET AL.