Nature Publishing Group The Macmillan Building, 4 Crinan St, London N1 9XW, UK e-mail: nature@nature.com



NATURE'S MISSION, 1869: 'The objective which it is proposed to attain by this periodical may be broadly stated as follows. It is intended, first, to place before the general public the grand results of scientific work and scientific discovery; and to urge the claims of science to move to a more general recognition in education and in daily life...Secondly, to aid scientific men [sic] themselves, by giving early information of all advances made in any branch of natural knowledge throughout the world, and by affording them an opportunity of discussing the various scientific questions which arise from time to time.'

Nature's mission statement was updated in 2000:

www.nature.com/nature/about Submissions and Guide to Authors: www.nature.com/nature/authors

Author and referee policies and services:

www.nature.com/authors

Nature* (ISSN 0028-0836) is published by Nature Publishing Group, a division of Macmillan Publishers Ltd (The Macmillan Building, 4 Crinari Street, London N19XW). Registered as a newspaper at the British Post Office.

North and South American orders to subscriptions@natureny.com (Tel. +1 866 383 7860). Other orders to subscriptionsiii nature.com (Tel. +44 (O)1256 329242; Taix +44 (O)1256 812358).

Fax +44 (0)1256 812358).

Authorization to photocopy material for internal or personal use, or internal or personal use, or internal or personal use of specific clients, if granted by Nature to libraries and others registered with the Copyright Clearance Center (CCC).

Transactional Reporting Service, provided the relevant copyright fee is paid direct to CCC, 222 Rosewood Drive, Datwers MA 01923, USA. Identification code for Nature: 0028-0836) is published weekly on Thursday, except the last week in December by Nature Publishing Group, 75 Varick St. 9th Fl. Niew York NY 10013-1917, USA. US Periodicals postage paid at New York NY, and additional mailing post offices. US POSTMASTER: send address changes to Nature. Subscription Dept. 342 Broadway PMB 301. New York NY 10013-3910, USA. Published in Japan by NPG Nature Assa. Pacific, Chiyoda Building, 2-37 Ichigayatarmachi, Shirpiak-Bu, Tokyo 162-0843, Japan.

2010 Macmillan Publishers Limited.

All rights reserved.



nature publishing group

nature

EDITORIALS

133 America's anti-science challenge | Misconduct inquiry in Germany disrupted by anonymous agitator

RESEARCH HIGHLIGHTS

- 134 Turn over an old leaf | Hermits fight for home | Contagious behaviour | A test for atmospheric chemistry | Genome size variation unexplained | Planets weigh in
- 135 JOURNAL CLUB Circadian rhythms in neurodegenerative disease Martha Merrow

NEWS

- 136 NEWS BRIEFING
- 138 US stem-cell research ruling makes waves abroad
- 139 Congress edges towards bipartisan bill to end deadlock on stem-cell research
- 140 Abundance of near-Earth objects adds urgency to decisions on how to spot genuine threats
- 141 Successful clinical trials of melanoma treatment raise hopes for future of anticancer gene therapy
- 143 Cell-mapping algorithms boosted by competition
- 144 US and China to cooperate on clean-energy research
- 145 Climate change links to civil war disputed

NEWS FEATURES

- 146 Neuroscience: In their nurture Lizzie Buchen
- 150 Geology: A trip to dinosaur time Jane Qiu

CORRESPONDENCE

153 CrossCheck in China | Ecology in the city | South American invasion | Project management, then and now



Taxonomy at a crossroads: the promise of automation, p. 154.

W.FORD/PALLINASAMINGALERY

Walton Ford's The Sensorium: a feast of allegory and wit, p. 158

OPINION

154 Taxonomy: Time to automate identification
Norman MacLeod, Mark Benfield & Phil Culverhouse

BOOKS & ARTS

- 156 The Cybernetic Brain: Sketches of Another Future by Andrew Pickering
 Reviewed by Rodney Brooks
- 157 The Climate Files: The Battle for the Truth About Global Warming by Fred Pearce Reviewed by Dave S Reay
- 158 EXHIBITION Bestarium Walton Ford's allegorical natural history paintings Martin Kemp

NEWS & VIEWS

- 159 Evolutionary biology: Communication and speciation
 Manuel Leal & Jonathan B Losos
- 160 Climate change: A glacial test of timing Martin P Kirkbride See Letter p. 194
- 161 Gene targeting: Enter the rat F Kent Hamra See Letter p. 211
- 163 Systems biology: The cost of feedback control
- Li Sun & Attila Becskei See Article p. 174
- 164 Nanotechnology: Holes with an edge Hagan Bayley See Letter p. 190

NATUREJOBS

- 239 Q&A Stephen Morris on liquid crystal materials
- 240 CAREERS Project management: Running the show Kelly Rae Chi

FUTURES

244 Dark they were, and strange inside Vaughan Stanger





The WDR62 mutation (right) causes microcephaly and many other brain defects, p. 207.

REVIEWS

167 Functional roles for noise in genetic circuits A Eldar & M B Elowitz See N&V p. 163

ARTICLES

- 174 Fundamental limits on the suppression of molecular fluctuations | Lestas, G Vinnicombe & J Paulsson See N&V p. 163
- Enhancement of proteasome activity by a small-molecule inhibitor of USP14
 B-H Lee, M J Lee, S Park, D-C Oh, S Elsasser, P-C Chen, C Gartner, N Dimova, J Hanna, S P Gygi, S M Wilson, R W King & D Finley

LETTERS

- High-resolution tunnelling spectroscopy of a graphene quartet Y J Song, A F Otte, Y Kuk, Y Hu, D B Torrance, P N First, W A de Heer, H Min, S Adam, M D Stiles, A H MacDonald & J A Stroscio
- 190 Graphene as a subnanometre trans-electrode membrane S Garaj, W Hubbard, A Reina, J Kong, D Branton & J A Golovchenko See N&V p. 164
- 194 Glacier retreat in New Zealand during the Younger Dryas stadial M R Kaplan, J M Schaefer, G H Denton, D J A Barrell, T J H Chinn, A E Putnam, B G Andersen, R C Finkel, R Schwartz & A M Doughty See N&V p. 160
- 198 2010 Maule earthquake slip correlates with pre-seismic locking of Andean subduction zone

 M Moreno, M Rosenau & O Oncken
- 203 A bizarre, humped Carcharodontosauria (Theropoda) from the Lower Cretaceous of Spain F Ortega, F Escaso & J L Sanz

207 Whole-exome sequencing identifies recessive WDR62 mutations in severe brain malformations

K Bilgüvar, A K Öztürk, A Louvi, K Y Kwan, M Choi, B Tatlı, D Yalnızoğlu, B Tüysüz, A O Çağlayan, S Gökben, H Kaymakçalan, T Barak, M Bakırcıoğlu, K Yasuno, W Ho, S Sanders, Y Zhu, S Yılmaz, A Dinçer, M H Johnson, R A Bronen, N Koçer, H Per, S Mane, M N Pamir, C Yalçınkaya, S Kumandaş, M Topçu, M Özmen, N Šestan, R P Lifton, M W State & M Günel

- Production of p53 gene knockout rats by homologous recombination in embryonic stem cells
 C Tong, P Li, N L Wu, Y Yan & Q-L Ying See N&V p. 161
- 214 A cryptic sensor for HIV-1 activates antiviral innate immunity in dendritic cells N Manel, B Hogstad, Y Wang, D E Levy, D Unutmaz & D R Littman
- MEC-17 is an α-tubulin acetyltransferase

 J S Akella, D Wloga, J Kim, N G Starostina, S Lyons-Abbott,
 N S Morrissette, S T Dougan, E T Kipreos & J Gaertig
- 223 HAATI survivors replace canonical telomeres with blocks of generic heterochromatin
 D Jain, A K Hebden, T M Nakamura, K M Miller & J P Cooper
- 228 Telomeres avoid end detection by severing the checkpoint signal transduction pathway
 T Carneiro, L Khair, C C Reis, V Borges, B A Moser, T M Nakamura
 & M G Ferreira
- 233 Structural basis of Na*-independent and cooperative substrate/product antiport in CaiT

 5 Schulze, S Köster, U Geldmacher, A C Terwisscha van Scheltinga & W Kühlbrandt

HIV-I released from infected human dendritic cells activates a viral sensor that triggers an antiviral immune response, p. 214.



NATURE ONLINE

ADVANCE ONLINE PUBLICATION PUBLISHED ON 5 SEPTEMBER 2010

Phosphorylation of MLL by ATR is required for execution of mammalian S-phase checkpoint

H Liu, S Takeda, R Kumar, T D Westergard, E J Brown, T K Pandita, E H-Y Cheng & J J-D Hsieh

doi:10.1038/nature09350

Oligomeric organization of the B-cell antigen receptor on resting cells

J Yang & M Reth

doi:10.1038/nature09357

PUBLISHED ON 7 SEPTEMBER 2010

Clinical efficacy of a RAF inhibitor needs broad target blockade in BRAF-mutant melanoma

G Bollag et al.

doi:10.1038/nature09454

PUBLISHED ON 8 SEPTEMBER 2010

A trans-acting locus regulates an anti-viral expression network and type 1 diabetes risk

M Heinig et al.

doi:10.1038/nature09386

Early warning signals of extinction in deteriorating environments

J M Drake & B D Griffen odoi:10.1038/nature09389

NEW PODCAST AND VIDEOS

On this week's podcast, regular features and background on the latest *Nature* papers. Go to iTunes or download from:

www.nature.com/podcast

For the latest videos from Nature, and the other NPG journals:

www.youtube.com/NatureVideoChannel

