CONTENTS

10 May 2012 / Vol 485 / Issue No 7397

THIS WEEK

EDITORIALS

147 GLOBAL DEVELOPMENT

With transparency comes trust Experts criticize results of Millennium Villages Project

147 GENETIC ENGINEERING

Misplaced protest

Crop scientists working to avert promised destruction of their work

148 PLANETARY SCIENCE

Price of freedom

In having to fly solo, Europe is sacrificing important space missions

WORLD VIEW

149 Beware the creeping cracks of bias

Daniel Sarewitz

The discovery of bias towards positive results in biomedicine is a call for action

RESEARCH HIGHLIGHTS

150 SELECTIONS FROM THE SCIENTIFIC LITERATURE

Putting glial cells in the picture / Toilet break / Glacial speed checked / Nanoscale drug delivery / Evolution of a bigger brain / Radio-controlled genes

SEVEN DAYS

152 THE NEWS IN BRIEF



Smithsonian to overhaul dinosaur exhibit / Japan closes last of its nuclear reactors / United States creates largest repository for genome data / FDA approves first biological drug created in genetically engineered plant

CAREERS

269 COLUMN

Enterprising science

Peter Fiske

For researchers with entrepreneurial flair, the rewards can be great

270 CAREER BRIEFS

NEWS IN FOCUS



155 LINGUISTICS

Claims about gaps in Amazon language attract scepticism

156 PARTICLE PHYSICS

Data pile-up at LHC has physicists scrambling for solutions

157 PHYSICS

Mathematical analysis supports idea of quantum reality

158 GLOBAL HEALTH

Millennium Villages Project claims to have improved health in Africa

160 BIOTECHNOLOGY

FDA approves biological drug made in modified plant cells

FEATURES

162 NUCLEAR SAFETY

Raiders of the lost archive

Tissue samples taken as long ago as the 1950s still have relevance



COMMENT

167 NUCLEAR SAFETY

Time to bury plutonium

Frank von Hippel, Rodney Ewing. Richard Garwin & Allison Macfarlane It's cheaper and safer to bury plutonium than to recycle it as fuel

169 PUBLIC HEALTH

Strengthen and stabilize the FDA

Daniel Carpenter

The FDA is under siege — its independence should be guaranteed

BOOKS & ARTS

171 NATURAL SCIENCES

The evolutionary struggle Andrew Berry

Light work The body is a mirror—in one of Scott



173 BOOKS IN BRIEF

CORRESPONDENCE

174 Indian science needs nongovernmental investment / A positive view of Cyprus Institute / Breast cancer tissue bank / Credit for Ludwik Fleck



FUTURES 272 The appropriate response Jeff Samson

CONTENTS

10 May 2012 / Vol 485 / Issue No 7397

RESEARCH

NEW ONLINE

175 Papers published this week at nature.com

NEWS & VIEWS

176 FORUM: AGRICULTURE

Comparing apples with oranges A meta-analysis of crop yields puts organic farming in the spotlight John P Reganold & Achim Dobermann SEE LETTER P.229

177 MATERIALS SCIENCE

Cracks tamed

Controlled crack propagation in laminate materials Antonio J Pons SEE LETTER P.221

179 CARDIOVASCULAR BIOLOGY

Escaped DNA inflames the heart
Mitochondrial DNA causes
inflammation and heart failure
through TLR9
Klitos Konstantinidis
& Richard N Kitsis SEE LETTER P.251

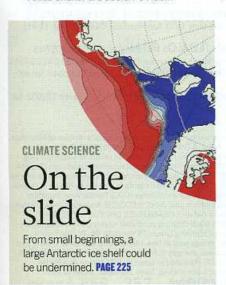
180 CLIMATE SCIENCE

A grip on ice-age ocean circulation Understanding why the ice-age AMOC differs between climate models Jochem Marotzke

181 STEM CELLS

One step closer to gut repair

Colonic stem cells can be grown and used to fix damaged gut in mice Anisa Shaker & Deborah C Rubin





183 BLACK HOLES

Star ripped to shreds Giant black hole destroys a stellar core Giuseppe Lodato SEE LETTER P.217

rwrw

185 ORGANIC CHEMISTRY Engineering the third wave of biocatalysis UT Bornscheuer et al.

ARTICLES

- 195 CELL BIOLOGY ZNRF3 promotes Wnt receptor turnover in an R-spondin-sensitive manner H-X Hao et al.
- 201 MOLECULAR BIOLOGY Topology of the human and mouse m⁶A RNA methylomes revealed by m⁶A-seq D Dominissini et al.
- 207 STRUCTURAL BIOLOGY Molecular mechanism of ATP binding and ion channel activation in P2X receptors M Hattori & E Gouaux

LETTERS

213 ASTRONOMY The suppression of star formation by powerful active galactic nuclei MJ Page et al.

- 217 ASTRONOMY An ultraviolet-optical flare from the tidal disruption of a helium-rich stellar core S Gezari et al. SEE N&V P.183
- 221 PHYSICS Patterning by controlled cracking KHNam, IHPark & SHKo SEE N&V P.177
- 225 CLIMATE SCIENCE Twenty-first-century warming of a large Antarctic ice-shelf cavity by a redirected coastal current H H Hellmer, F Kauker, R Timmermann, J Determann & J Rae
- 229 AGRICULTURE Comparing the yields of organic and conventional agriculture V Seulert, N Ramankutty & J A Foley SEE N&V P.176
- 233 NEUROSCIENCE Selective cortical representation of attended speaker in multi-talker speech perception N Mesgarani & E F Chang
- 237 GENOMICS De novo mutations revealed by whole-exome sequencing are strongly associated with autism SJ Sanders et al.
- 242 GENOMICS Patterns and rates of exonic de novo mutations in autism spectrum disorders

 B M Neale et al.
- 246 GENOMICS Sporadic autism exomes reveal a highly interconnected protein network of *de novo* mutations BJO'Roak et al.
- 251 CARDIOVASCULAR BIOLOGY Mitochondrial DNA that escapes from autophagy causes inflammation and heart failure T Oka et al. SEE N&V P.179
- VIROLOGY Cell attachment protein
 VP8* of a human rotavirus specifically
 interacts with A-type histo-blood
 group antigen
 L Hu et al.
- 260 CANCER Validation of ITD mutations in FLT3 as a therapeutic target in human acute myeloid leukaemia C C Smith et al.
- 264 MOLECULAR BIOLOGY Systematic discovery of structural elements

 governing stability of mammalian messenger RNAs

 H Goodarzi et al.