

CONTENTS



16 JANUARY 2015 • VOLUME 347 • ISSUE 6219

NEWS

IN BRIEF

216 Roundup of the week's news

IN DEPTH

219 HIGH HOPES FOR GUINEAN VACCINE TRIAL

In nation with unrelenting epidemic, an unusual trial may provide key answers *By M. Enserink*

220 ALL IN THE (BIGGER) FAMILY

Revised arthropod tree marries crustacean and insect fields *By E. Pennisi*

222 GOOGLETM SEARCHES FOR WAYS TO BOOST CANCER IMMUNOTHERAPY

At gathering, researchers brainstorm "10x" ideas *By J. Cohen*

223 THROWING A LIFELINE TO A ONE-TIME ARAB SCIENCE POWER

Iraqi scientists gain expertise from U.S. fellowships *By R. Stone*

224 BACKLASH GREETS 'BAD LUCK' CANCER STUDY AND COVERAGE

How subtleties got lost in the telling *By J. Couzin-Frankel*

225 DEVICES TEAM UP TO BOOST SOLAR POWER

Hot new solar cell materials are poised to rev up the output of traditional photovoltaics *By R. F. Service*

FEATURE

226 THE CANCER STEM CELL GAMBLE

Researchers are betting that a round of clinical trials will prove a controversial cancer theory and deliver new treatments *By J. Kaiser*

INSIGHTS

PERSPECTIVES

230 THE BIRTH OF THE GEOLOGICAL MAP

Two hundred years ago, William Smith published the first geological map of a country *By T. Sharpe*

232 NEW SQUID ON THE BLOCH

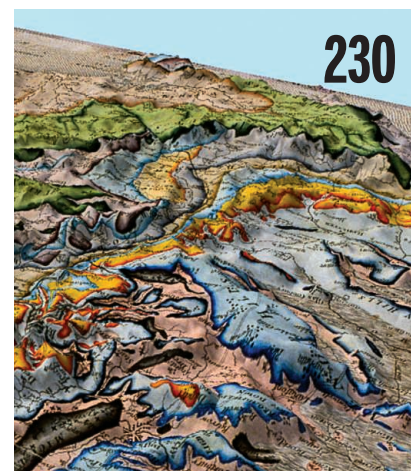
A cloud of cold atoms can operate as an ultrasensitive interferometer *By A. Lamacraft*

► REPORT P. 288

233 INTERFERING WITH INTERFERONS

The gut microbiota helps norovirus to persist by controlling λ interferons *By J. Wilks and T. Golovkina*

► REPORTS PP. 266 & 269



234 GENDER INEQUALITY IN SCIENCE

How should a better gender balance be achieved? *By A. M. Penner*

► REPORT P. 262

236 DISCLOSING PATENTS' SECRETS

Inventors prefer to disclose know-how before patent grant *By S. Graham and D. Hegde*

BOOKS ET AL.

239 CHEAP AND CLEAN

By S. Ansolabehere and D. M. Konisky, reviewed by M. E. Kahn

240 THE MYTH OF MIRROR NEURONS

By G. Hickok, reviewed by C. Keyser

241 LET ME HEAL

By K. M. Ludmerer, reviewed by C. Whitehead

LETTERS

242 ONE MEDICINE ONE SCIENCE AND POLICY

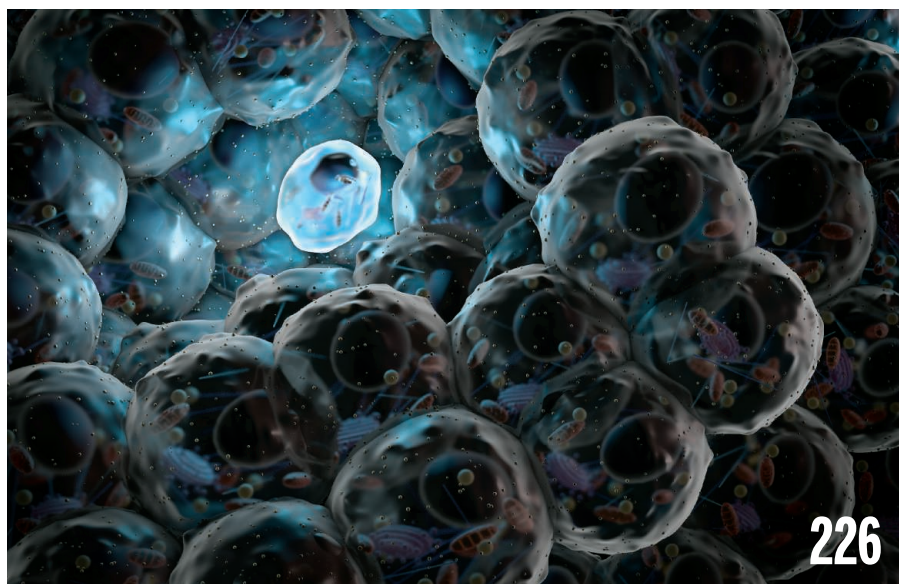
By P. Sriramarao et al.

242 COUNTING ON SMALL-SCALE FISHERIES

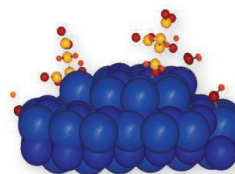
By D. Pauly and A. Charles

243 A DEFENSE OF ANIMAL WELFARE ACCREDITATION

By C. Newcomer



Science Staff	214
New Products	337
Science Careers	338



RESEARCH

IN BRIEF

244 From *Science* and other journals

REVIEW

247 MARINE CONSERVATION

Marine defaunation: Animal loss in the global ocean *D. J. McCauley et al.*

REVIEW SUMMARY; FOR FULL TEXT:
dx.doi.org/10.1126/science.1255641

REPORTS

248 ASIAN ARCHAEOLOGY

Agriculture facilitated permanent human occupation of the Tibetan Plateau after 3600 B.P. *F. H. Chen et al.*

250 ANIMAL PHYSIOLOGY

The roller coaster flight strategy of bar-headed geese conserves energy during Himalayan migrations *C. M. Bishop et al.*

► PODCAST

255 PALEOCEANOGRAPHY

Reduced El Niño–Southern Oscillation during the Last Glacial Maximum *H. L. Ford et al.*

258 PALEOECOLOGY

Linked canopy, climate, and faunal change in the Cenozoic of Patagonia *R. E. Dunn et al.*

262 WOMEN IN SCIENCE

Expectations of brilliance underlie gender distributions across academic disciplines *S.-J. Leslie et al.*

► PERSPECTIVE P. 234

NOROVIRUS

266 Commensal microbes and interferon- λ determine persistence of enteric murine norovirus infection *M. T. Baldrige et al.*

269 Interferon- λ cures persistent murine norovirus infection in the absence of adaptive immunity *T. J. Nice et al.*

► PERSPECTIVE P. 233

273 TELOMERES IN CANCER

Alternative lengthening of telomeres renders cancer cells hypersensitive to ATR inhibitors *R. L. Flynn et al.*

278 T CELL VACCINES

Vaccine-elicited CD4 T cells induce immunopathology after chronic LCMV infection *P. Penalzoza-MacMaster et al.*

282 SUPERCONDUCTIVITY

Charge ordering in the electron-doped superconductor $\text{Nd}_{2-x}\text{Ce}_x\text{CuO}_4$ *E. H. da Silva Neto et al.*

285 APPLIED PHYSICS

Semiconductor double quantum dot micromaser *Y.-Y. Liu et al.*

288 QUANTUM GASES

An Aharonov-Bohm interferometer for determining Bloch band topology *L. Duca et al.*

► PERSPECTIVE P. 232

292 INTERFACIAL SOLVENTS

Universal solvent restructuring induced by colloidal nanoparticles *M. Zobel et al.*

294 TOPOLOGICAL MATTER

Observation of Fermi arc surface states in a topological metal *S.-Y. Xu et al.*

DEPARTMENTS

215 EDITORIAL

Toward designing safer chemicals

By *Julie B. Zimmerman and Paul T. Anastas*

346 WORKING LIFE

A European postdoc for the family

By *Michelle Gabriele Sandrian*



ON THE COVER



Bar-headed geese (*Anser indicus*) flying above the Tibetan Plateau. Rather than migrate high above the ground at a steady altitude, these birds fly only as high as the undulating terrain requires. This

flight path keeps them in relatively dense air and reduces energy expenditure. Measures of heart rate and wingbeat frequency confirm that the birds usually fly comfortably within their physiological capabilities. See page 250. Photo: *Coke Smith*

Science

347 (6219)

Science **347** (6219), 215-346.

ARTICLE TOOLS

<http://science.sciencemag.org/content/347/6219>

PERMISSIONS

<http://www.sciencemag.org/help/reprints-and-permissions>

Use of this article is subject to the [Terms of Service](#)

Science (print ISSN 0036-8075; online ISSN 1095-9203) is published by the American Association for the Advancement of Science, 1200 New York Avenue NW, Washington, DC 20005. 2017 © The Authors, some rights reserved; exclusive licensee American Association for the Advancement of Science. No claim to original U.S. Government Works. The title *Science* is a registered trademark of AAAS.