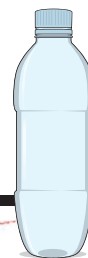


# CONTENTS

11 MARCH 2016 • VOLUME 351 • ISSUE 6278



## 1154 & 1196

Soda bottles for dinner

## SPECIAL SECTION Forensics

### NEWS

- 1128** Evidence on trial  
*By M. Enserink*
- 1130** Sizing up the evidence  
*By K. Servick*
- 1133** When DNA is lying *By D. Starr*
- 1134** How hair can reveal a history  
*By H. Armitage and N. Rogers*
- 1136** A trail of microbes  
*By K. Kupferschmidt*
- 1138** Who dropped the bomb? *By R. Stone*
- 1140** Whose voice is that?  
*By N. Rogers*
- 1141** Clues from the ashes  
*By L. Wade*
- 1143** The microbial death clock  
*By K. Kupferschmidt*
- 1144** The Bitcoin busts  
*By J. Bohannon*

### SEE ALSO

► PODCAST

### ON THE COVER



Bullets fired from the same pistol by the Prince George's County Police Department, in Maryland, show similar but not identical markings—an example of the ambiguity that plagues much crime-

scene evidence. The bullets were fired as part of a research effort to bring greater rigor to forensic analysis, conducted by the National Institute of Standards and Technology. See page 1128. For more on the process behind the cover image, see <http://scim.ag/1LPKy4C>.  
*Photo: Matthew Rakola*

## NEWS

### IN BRIEF

**1120** News at a glance

### IN DEPTH

#### **1122** MARS ORBITER TO SNIFF FOR METHANE

Mission aims to settle whether gas exists—and whether it could hint at life  
*By E. Hand*

#### **1123** EVIDENCE GROWS FOR ZIKA VIRUS AS PREGNANCY DANGER

Lab experiments and new clinical data suggest that fast-spreading virus attacks developing brain *By G. Vogel*

#### **1124** IN SEARCH OF SPACETIME MEGAWAVES

Timing in celestial radio beacons could reveal gravitational tsunamis *By D. Clery*

#### **1126** WHY HIGH 'GOOD CHOLESTEROL' CAN BE BAD NEWS

A faulty transport system sometimes causes high HDL *By J. Couzin-Frankel*  
► RESEARCH ARTICLE P. 1166

#### **1127** PLANS FOR NEW RESEARCH HUB GET CRITICAL RECEPTION

Scientists welcome new money but worry about lack of transparency  
*By L. Margottini*

## INSIGHTS

### PERSPECTIVES

#### **1148** ENDING HIDE AND SEEK AT SEA

New technologies could revolutionize ocean observation *By D. J. McCauley et al.*

#### **1150** THE INVISIBLE DIMENSION OF FUNGAL DIVERSITY

Can microbial taxa be defined from environmental molecular sequences?  
*By D. Hibbett*

#### **1152** THE TIME IS RIGHT FOR MULTIPHOTON ENTANGLED STATES

A chip-based microresonator enables time-bin entanglement *By A. C. Peacock and M. J. Steel*  
► REPORT P. 1176

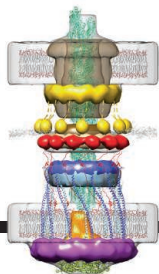
#### **1153** UNRAVELING A PATHWAY TO AUTISM

A signaling pathway that controls protein synthesis may be a target for autism therapeutics *By J. P. H. Burbach*  
► REPORT P. 1199; RESEARCH ARTICLE BY F. YI ET AL. 10.1126/science.aaf2669

#### **1154** FEEDING ON PLASTIC

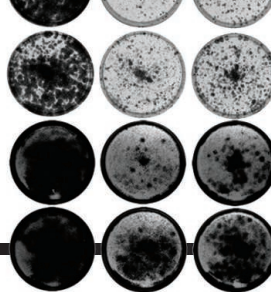
A bacterium completely degrades poly(ethylene terephthalate)  
*By U. T. Bornscheuer*  
► REPORT P. 1196





1165

Protein machines that move bacteria



1208 & 1214

Metabolic rewiring in cancer cells

**1156 TO SEE THE WORLD IN A GRAIN OF SPINS**

A universal simulator is developed that can model the workings of any classical spin system *By S. Wehner*

► REPORT P. 1180

**BOOKS ET AL.**

**1158 THE IMPORTANCE OF BEING LITTLE**

*By E. Christakis, reviewed by K. Hirsh-Pasek and R. M. Golinkof*

**1159 INSIDE GRADUATE ADMISSIONS**

*By J. R. Posselt, reviewed by S. Beilock*

**LETTERS**

**1160 STREAMLINING CHINA'S PROTECTED AREAS**

*By J. Li et al.*

**1160 SOCIAL COST OF CARBON: GLOBAL DUTY**

*By C. Guivarch et al.*

**1161 REFORMING CHINA'S SCIENCE AWARDS**

*By G. Qi et al.*

**1161 TECHNICAL COMMENT ABSTRACTS**

**RESEARCH**

**IN BRIEF**

**1162** From *Science* and other journals

**RESEARCH ARTICLES**

**1165 BACTERIAL PILI**

Architecture of the type IVa pilus machine *Y-W. Chang et al.*

RESEARCH ARTICLE SUMMARY; FOR FULL TEXT: dx.doi.org/10.1126/science.aad2001

**1166 HEART DISEASE**

Rare variant in scavenger receptor BI raises HDL cholesterol and increases risk of coronary heart disease *P. Zanoni et al.*

► NEWS STORY P. 1126

**1171 CHEMICAL PHYSICS**

Wavelike charge density fluctuations and van der Waals interactions at the nanoscale *A. Ambrosetti et al.*

**REPORTS**

**1176 QUANTUM OPTICS**

Generation of multiphoton entangled quantum states by means of integrated frequency combs *C. Reimer et al.*

► PERSPECTIVE P. 1152

**1180 SPIN MODELS**

Simple universal models capture all classical spin physics *G. De las Cuevas and T. S. Cubitt*

► PERSPECTIVE P. 1156

**1184 TOPOLOGICAL MATTER**

Quasiparticle interference of the Fermi arcs and surface-bulk connectivity of a Weyl semimetal *H. Inoue et al.*

**1188 ZEOLITES**

Accelerated crystallization of zeolites via hydroxyl free radicals *G. Feng et al.*

**1192 FUNGAL ENZYMES**

Early-branching gut fungi possess a large, comprehensive array of biomass-degrading enzymes *K. V. Solomon et al.*

**1196 BIODEGRADATION**

A bacterium that degrades and assimilates poly(ethylene terephthalate) *S. Yoshida et al.*

► PERSPECTIVE P. 1154

**1199 NEURODEVELOPMENT**

CLK2 inhibition ameliorates autistic features associated with SHANK3 deficiency *M. Bidinosti et al.*

► PERSPECTIVE P. 1153; RESEARCH ARTICLE BY F. YI ET AL. 10.1126/science.aaf2669

**1204 CANCER BIOLOGY**

Schedule-dependent interaction between anticancer treatments *S. Chen et al.*

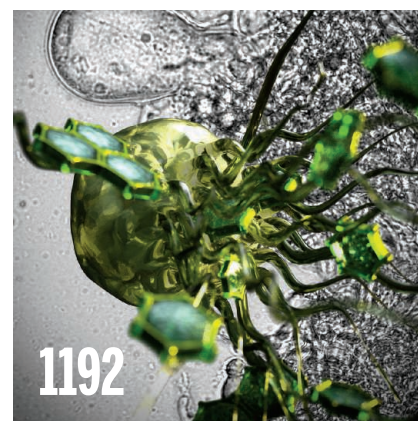
**CANCER THERAPY**

**1208** Disordered methionine metabolism in MTAP/CDKN2A-deleted cancers leads to dependence on PRMT5 *K. J. Mavrakis et al.*

**1214** MTAP deletion confers enhanced dependency on the PRMT5 arginine methyltransferase in cancer cells *G. V. Kryukov et al.*

**1218 TRANSCRIPTION**

Measurement of gene regulation in individual cells reveals rapid switching between promoter states *L. A. Sepúlveda et al.*



1192

**DEPARTMENTS**

**1117 EDITORIAL**

Tackling toxics *By Arlene Blum*

**1119 EDITOR'S NOTE**

PREview of new products *By Marcia McNutt*

**1230 WORKING LIFE**

The water watchdog *By Rachel Bernstein*

Science Staff ..... 1114  
New Products ..... 1223  
Science Careers ..... 1224

SCIENCE (ISSN 0036-8075) is published weekly on Friday, except the last week in December, by the American Association for the Advancement of Science, 1200 New York Avenue, NW, Washington, DC 20005. Periodicals mail postage (publication No. 484460) paid at Washington, DC, and additional mailing offices. Copyright © 2016 by the American Association for the Advancement of Science. The title SCIENCE is a registered trademark of the AAAS. Domestic individual membership and subscription (51 issues): \$165 (\$74 allocated to subscription). Domestic institutional subscription (51 issues): \$1522. Foreign postage extra: Mexico, Caribbean (surface mail) \$55; other countries (air assist delivery) \$89. First class, airmail, student, and emeritus rates on request. Canadian rates with GST available upon request. GST #R1254 88122. Publications Mail Agreement Number 1069624. Printed in the U.S.A. Change of address: Allow 4 weeks, giving old and new addresses and 8-digit account number. Postmaster: Send change of address to AAAS, P.O. Box 96178, Washington, DC 20090-6178. Single-copy sales: \$15.00 current issue, \$20.00 back issue prepaid includes surface postage; bulk rates on request. Authorization to photocopy material for internal or personal use under circumstances not falling within the fair use provisions of the Copyright Act is granted by AAAS to libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service, provided that \$35.00 per article is paid directly to CCC, 222 Rosewood Drive, Danvers, MA 01923. The identification code for Science is 0036-8075. Science is indexed in the Reader's Guide to Periodical Literature and in several specialized indexes.

# Science

**351 (6278)**

*Science* **351** (6278), 1117-1230.

ARTICLE TOOLS

<http://science.sciencemag.org/content/351/6278>

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.