EDITORIAL

1043 Improving ERC Ethical Standards Helga Nowotny and Pavel Exner

NEWS OF THE WEEK

1048 A roundup of the week's top stories

NEWS & ANALYSIS

1050 U.N. Taps Special Labs to Investigate Syrian Attack As Syria Crisis Mounts, Scientist Looks Back at Last Major Chemical Attack

1052 Fluorine-Adding Bacteria May Transform Natural Product Medicines Protein Designers Go Small >> Report p. 1089

1053 Japan Gets Serious About Creating Its Own NIH

1055 Evolution Heresy? Epigenetics Underlies Heritable Plant Traits

NEWS FOCUS

1056 Boxed In The Unruly Neutrino

1060 Sizing Up a Slumbering Giant >> Science Podcast

LETTERS

1062 The Risky Road to Mars V. E. Viola

> Response C. Zeitlin

Controversial Salt Report Peppered with Uncertainty D. M. Johns et al.

1064 CORRECTIONS AND CLARIFICATIONS

BOOKS ET AL.

1065 The Avian Migrant
J. H. Rappole, reviewed by F. Bairlein

1066 An Uncertain Glory
J. Drèze and A. Sen, reviewed by A. Robinson

POLICY FORUM

1067 Certify Sustainable Aquaculture? S. R. Bush et al.

PERSPECTIVES

1069 Fighting Obesity with Bacteria A. W. Walker and J. Parkhill >> Research Article p. 1079

1070 Reducing Earthquake Risk B. E. Tucker

1072 Unraveling Charge Transport in Conjugated Polymers R. A. Street

1073 Feedback on Galaxy Formation B. R. McNamara >> Report p. 1082

1075 A Hyperventilating Biosphere
I. Fung
>> Report p. 1085

1076 Uncloaking the Quantum Nature of Inelastic Molecular Collisions P. Casavecchia and M. H. Alexander >> Report p. 1094

1078 Retrospective: Tony Pawson (1952–2013)
T. Hunter

CONTENTS continued >>



page 1060



page 1065

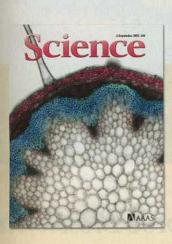
ON THE WEB THIS WEEK

>> Science Podcast

Listen to stories on failed stars, numerosity in the brain, monitoring a North Korean volcano, and more.

>> Find More Online

Check out Science Express, our podcast, videos, daily news, our research journals, and Science Careers at www.sciencemag.org.



COVER

Enhanced-color confocal microscopy image of a cross section of an *Arabidopsis* stem (diameter of full section: 2 millimeters; excluding the protruding epidermal hair cell). The cell walls in blue contain lignin, which provides strength to the walls. The magenta color in the cortex cells reflects the presence of chlorophyll. Caffeoyl shikimate esterase is an enzyme central to the biosynthesis of lignin, a major factor limiting biomass processing for biofuels. See page 1103.

Image: Lisa Sundin, Matyas Fendrych, and Daniel Van Damme/VIB, Belgium

DEPARTMENTS

1041 This Week in Science

1044 Editors' Choice

1046 Science Staff

1127 New Products

1128 Science Careers

RESEARCH ARTICLE

1079 Gut Microbiota from Twins Discordant for Obesity Modulate Metabolism in Mice V. K. Ridaura et al.

Mice carrying gut bacteria from lean humans protect their cage mates from the effects of gut bacteria from fat humans.

Research Article Summary; for full text: http://dx.doi.org/10.1126/science.1241214

>> Perspective p. 1069

REPORTS

- 1080 Decades-Long Changes of the Interstellar Wind Through Our Solar System P. C. Frisch et al.
 Analysis of data collected by 10 different spacecraft indicates that our solar system's local environment may be changing.
- 1082 Radio Jets Clearing the Way Through a Galaxy: Watching Feedback in Action R. Morganti et al.
 High-resolution radio images of a galaxy reveal how a jet of relativistic particles is driving cold gas away from the center.
 >> Perspective p. 1073
- to by Northern Ecosystems Since 1960

 H. D. Graven et al.

 The amplitude of the seasonal cycle of carbon dioxide in high northern latitudes has increased by 50% since 1960.

 >> Perspective p. 1075
- 1089 Expanding the Fluorine Chemistry of Living Systems Using Engineered Polyketide Synthase Pathways M. C. Walker et al.
 Biochemical pathways can be engineered to incorporate fluoroacetate into tri- and tetraketides in place of acetate.
 >> News story p. 1052
- 1094 Observation of Partial Wave Resonances in Low-Energy O₂-H₂ Inelastic Collisions S. Chefdeville et al.
 Purely quantum mechanical effects are manifested in an experiment probing crossed molecular beams.
 >> Perspective p. 1076
- 1096 Direct Determination of Absolute
 Molecular Stereochemistry in Gas Phase
 by Coulomb Explosion Imaging
 M. Pitzer et al.
 A simple molecule's three-dimensional

A simple molecule's three-dimensional structure can be ascertained from the fragment trajectories when it is blown apart.

- 1100 Achieving the Convention on Biological
 Diversity's Goals for Plant Conservation
 L. N. Joppa et al.
 Protecting 17% of the land surface
 and 60% of plant species is possible,
 but not at present.
- 1103 Caffeoyl Shikimate Esterase (CSE)
 Is an Enzyme in the Lignin Biosynthetic
 Pathway in Arabidopsis
 R. Vanholme et al.
 A key enzyme involved in lignin biosynthesis
 is identified and characterized in the model
 plant Arabidopsis.
- 1106 Epigenetic Regulation of Mouse Sex Determination by the Histone Demethylase Jmjd1a
 S. Kuroki et al.
 Histone modification controls mammalian sex determination.
- 1110 Single-Cell DNA-Methylation Analysis
 Reveals Epigenetic Chimerism in
 Preimplantation Embryos
 C. Lorthongpanich et al.
 Lethal epigenetic chimerism can be rescued
 by transfer of pronuclei.
- 1113 Neuroendocrine Control of Drosophila
 Larval Light Preference
 N. Yamanaka et al.
 The hormone that triggers the transition from
 larva to adult also induces the larvae to find
 a dark spot to do this safely.
- 1116 Conserved Regulation of Cardiac Calcium
 Uptake by Peptides Encoded in Small
 Open Reading Frames
 E. G. Magny et al.
 Small peptides regulate calcium transport
 and regular heart contraction in both flies
 and humans.
- 1120 A Causative Link Between Inner Ear
 Defects and Long-Term Striatal
 Dysfunction

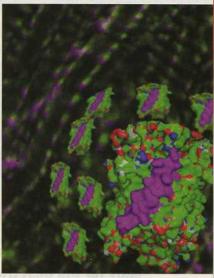
 M. W. Antoine et al.
 In mutant mice, severe ear dysfunction
 is associated with motor hyperactivity.
- 1123 Topographic Representation of Numerosity in the Human Parietal Cortex B. M. Harvey et al.

 There is a map of numerical magnitude in the human brain.

 >> Science Podcast



pages 1073 & 1082



page 1116

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 Mall postage (publication No. 484460) paid at Washington, DC, and additional mailing offices. Copyright © 2013 by the American Association for the Advancement of Science. The title SCIENCE is a registered trademark of the AAAS. Domestic individual membership and subscription (\$1 issues): 5149 (574 allocated to subscription). Domestic institutional subscription (\$1 issues): 5990; Foreign postage extra. Mexico, Caribbean Gustrace mail): 555; other countries (air assist delivery) 485. First class, airmail, student, and emeritus rates on request. Canadian rates with GST available upon request, GST #1254 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: \$10.00 current issue, \$15.00 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 \$30.00 per article is paid directly to CCC, 222 Rosewood Drive, Danwers, 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.