INSIGHTS

PERSPECTIVES
442 PARASITIC PLANTS—A CURE FOR WHAT AILS THEE
A parasitic plant is perceived by its host plant in a similar manner to microbes
By V. Ntoukakis and S. Gimenez-Ibanez
► REPORT P. 478

444 ON THE RECORD WITH E. COLI DNA
DNA can be engineered for cells to record events in real time
By O. Borkowski et al.
► RESEARCH ARTICLES PP. 462 & 463

445 THE SMOKING GUN FOR ATLANTIC CIRCULATION CHANGES
Deep-sea sediments record changes in ocean circulation during the last glacial age
By A. Schmittner
► REPORT P. 470

446 PLANT EXTINCTIONS TAKE TIME
Many plant species may already be functionally extinct
By Q. Cronk

POLICY FORUM
448 COUNTERING IMPRECISION IN PRECISION MEDICINE
Better coordination is needed to study complex interventions
By S. P. Hey and A. S. Kesselheim

BOOKS ET AL.
450 I CONTAIN MULTITUDES
By E. Yong, reviewed by S. Perkins

451 HISTORY WITHIN
By M. Sommer, reviewed by M. Meloni

LETTERS
452 CLARIFYING SAMPLES IN ZIKA ANALYSES
By J. R. M. de Oliveira and D. A. P. Moura

452 ANIMAL-BASED ANTIBODIES: OBSOLETE
By A. C. Gray et al.

453 THE LINE BETWEEN SCIENCE AND POLITICS
By M. Weintraub

453 TECHNICAL COMMENT ABSTRACTS

FEATURE
438 FORBIDDEN PLANETS
How the zoo of exoplanets has turned planet formation theory upside down
By D. Clery

IN BRIEF
428 News at a glance

IN DEPTH
432 OBSTACLES LOOM ALONG PATH TO THE END OF AIDS
International meeting highlights clash between ambitious goals and wobbly funding
By J. Cohen

433 CHIMPANZEE SANCTUARIES OPEN DOOR TO MORE RESEARCH
Collaboration aims to beef up science at retirement centers
By D. Grimm

434 RETHINKING THE NORTH AMERICAN WOLF
Genome sequencing suggests two endangered wolf species are coyote hybrids
By V. Morell
► SCIENCE ADVANCES RESEARCH ARTICLE BY B. M. VONHOLDT ET AL.

436 AFTER FAILED COUP, TURKEY’S ACADEMICS FEEL REGIME’S WRATH
Thousands of researchers and university officials fired, suspended, or told to return home immediately
By J. Bohannon

437 UNCERTAINTY REIGNS IN BREXIT BRITAIN
As U.K. universities counsel their E.U. staff, researchers see first signs of fallout
By E. Stokstad

438 FORBIDDEN PLANETS
How the zoo of exoplanets has turned planet formation theory upside down
By D. Clery

439 THE LINE BETWEEN SCIENCE AND POLITICS
By M. Weintraub

440 TECHNICAL COMMENT ABSTRACTS

437 UNCERTAINTY REIGNS IN BREXIT BRITAIN
As U.K. universities counsel their E.U. staff, researchers see first signs of fallout
By E. Stokstad

438 FORBIDDEN PLANETS
How the zoo of exoplanets has turned planet formation theory upside down
By D. Clery

439 THE LINE BETWEEN SCIENCE AND POLITICS
By M. Weintraub

440 TECHNICAL COMMENT ABSTRACTS

437 UNCERTAIN REIGNS IN BREXIT BRITAIN
As U.K. universities counsel their E.U. staff, researchers see first signs of fallout
By E. Stokstad

438 FORBIDDEN PLANETS
How the zoo of exoplanets has turned planet formation theory upside down
By D. Clery

439 THE LINE BETWEEN SCIENCE AND POLITICS
By M. Weintraub

440 TECHNICAL COMMENT ABSTRACTS

437 UNCERTAINTY REIGNS IN BREXIT BRITAIN
As U.K. universities counsel their E.U. staff, researchers see first signs of fallout
By E. Stokstad

438 FORBIDDEN PLANETS
How the zoo of exoplanets has turned planet formation theory upside down
By D. Clery

439 THE LINE BETWEEN SCIENCE AND POLITICS
By M. Weintraub
RESEARCH

IN BRIEF

458 From Science and other journals

REVIEW

461 APPLIED PHYSICS
2D materials and van der Waals heterostructures K. S. Novoselov et al.
REVIEW SUMMARY: FOR FULL TEXT: dx.doi.org/10.1126/science.aaf3943

462 CELL LINEAGE TRACING
Whole-organism lineage tracing by combinatorial and cumulative genome editing A. McKenna et al.
RESEARCH ARTICLE SUMMARY: FOR FULL TEXT: dx.doi.org/10.1126/science.aafl7907

463 SYNTHETIC BIOLOGY
Molecular recordings by directed CRISPR spacer acquisition S. L. Shipman et al.
RESEARCH ARTICLE SUMMARY: FOR FULL TEXT: dx.doi.org/10.1126/science.aafl175

REPORTS

464 OPTICS
Orbital angular momentum microlaser P. Miao et al.

467 ELECTROCHEMISTRY
Nanostructured transition metal dichalcogenide electrocatalysts for CO2 reduction in ionic liquid M. Asadi et al.

470 PALEOCEANOGRAPHY
North Atlantic ocean circulation and abrupt climate change during the last glaciation L. G. Henry et al.

472 EDUCATION
Teaching accreditation exams reveal grading biases favor women in male-dominated disciplines in France T. Breda and M. Hillion

478 PARASITIC PLANTS
Detection of the plant parasite Cuscuta reflexa by a tomato cell surface receptor V. Hogenauer et al.

482 PLANT ECOLOGY
Rapid evolution accelerates plant population spread in fragmented experimental landscapes J. L. Williams et al.

485 PLANT DEVELOPMENT
Arabidopsis transcriptional repressor VAL1 triggers Polycomb silencing at FLC during vernalization J. I. Quesada et al.

495 EPIGENETICS
Early-life nutrition modulates the epigenetic state of specific rDNA genetic variants in mice M. L. Holland et al.

499 HUMAN GENETICS
Early Neolithic genomes from the eastern Fertile Crescent F. Broushaki et al.

503 STRUCTURAL BIOLOGY
Crystal structure of Zika virus NS2B-NS3 protease in complex with a boronate inhibitor J. Lei et al.

506 STRUCTURAL BIOLOGY
An atomic model of HIV-1 capsid-SP1 reveals structures regulating assembly and maturation F. K. M. Schur et al.

DEPARTMENTS

427 EDITORIAL
Intentional equity
By France A. Córdova

514 WORKING LIFE
Growth from failure
By Tenaya K. Vallery

ON THE COVER

Hypogymnia imshaugii, a macrolichen common in northwestern North America. Lichens were previously thought to contain two parts: an ascomycetous fungus and a photosynthetic alga. Spribille et al. show that a third element—a basidiomycete yeast—is part of the lichen cortex in the largest group of macrolichens. See page 488. Photo: Timothy B. Wheeler/timwheelerphotography.com

442 & 478

488 SYMBIOSIS
Basidiomycete yeasts in the cortex of ascomycete macrolichens T. Spribille et al.

492 INFECTION
Increased plasmid copy number is essential for Yersinia T3SS function and virulence H. Wang et al.
Science 353 (6298), 427-514.

http://science.sciencemag.org/content/353/6298

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.