CONTENTS

NEWS

IN BRIEF
336 News at a glance

IN DEPTH
340 TURMOIL IMPERILS RESEARCH UNIVERSITY IN ANDES
Budget cuts and firings threaten Ecuador's plans for an academic powerhouse By E. Rodríguez Mega

341 HEAD OF FRANCE'S MAIN FUNDING BODY RESIGNS AMID ACRIMONY
Cash-strapped National Research Agency was torn by clashes between scientists and administrators By E. Pain

342 TRAVEL BAN WOULD SLAM UNIVERSITY IN NORTH KOREA
Pyongyang University chancellor speaks out on ban’s consequences and on university-affiliated detainees By R. Stone

343 FUNDERS GROAN UNDER GROWING REVIEW BURDEN
Granting agencies want research on how to reduce pressure and maintain quality By J. de Vrieze

344 DISEASE SLEUTHS UNMASK DEADLY ENCEPHALITIS CULPRIT
Old microbial foe takes on a nastier guise in northern India By P. Pulla

345 ‘SCIENTIFIC WELLNESS’ STUDY DIVIDES RESEARCHERS
Famed biologist’s spinoff company sells personalized health monitoring and coaching By R. Cross

FEATURE
346 BIOLOGY OF THE BOOK
Scientists develop new ways to read the biological history of ancient manuscripts By A. Gibbons
PODCAST: VIDEO

INSIGHTS

PERSPECTIVES
350 NITROGEN STEWARDSHIP IN THE ANTHROPOCENE
How can nitrogen emissions be reduced and reused to reduce pressure on ecosystems? By S. P. Seitzinger and L. Phillips
REPORT P. 405

352 DIRECTING RECONFIGURABLE DNA NANOARRAYS
Information flow, encoded in structure, can be relayed along a chain of engineered DNA By Y. Yang and C. Lin
RESEARCH ARTICLE P. 371

353 PHOTOLITHOGRAPHY BASED ON NANGCRYSTALS
Surface chemistry of all-inorganic nanomaterials enables three-dimensional patterning By M. Striccoli
REPORT P. 385

354 THE GENOME—SEEING IT CLEARLY NOW
Genome architecture is revealed with electron tomography By D. R. Larson and T. Misteli
RESEARCH ARTICLE P. 370

356 EAST NOT LEAST FOR PACIFIC BLUEFIN TUNA
More Pacific bluefin migrate across the ocean than previously recognized By D. J. Madigan et al.

358 GENETIC BIOMARKER FOR CANCER IMMUNOTHERAPY
A tumor-associated defect can identify patients to receive immune checkpoint therapy By S. Goswami and P. Sharma
REPORT P. 409

POLICY FORUM
359 IMPROVING GLOBAL INTEGRATION OF CROP RESEARCH
Field laboratories in realistic crop environments are needed By M. P. Reynolds et al.

BOOKS ET AL.
361 AL GORE’S INCONVENIENT UPDATE
The former vice president’s climate activism takes center stage once again By V. Thompson

362 INEVITABLE OR IMPROBABLE?
A biologist sheds light on the evolutionary likelihood of human existence By A. Woolfson

LETTERS
363 CONTINGENT VALUATION: FLAWED LOGIC?
By J. Baron
363 RESPONSE
By R. C. Bishop et al.

364 CALL TO RESTORE NIH’S CAP ON GRANT FUNDING
By M. Peifer

RESEARCH

IN BRIEF
366 From Science and other journals

REVIEW
369 METABOLISM
Kynurenines: Tryptophan’s metabolites in exercise, inflammation, and mental health I. Cervenka et al.
REVIEW SUMMARY: FOR FULL TEXT:
dx.doi.org/10.1126/science.aaf9794

RESEARCH ARTICLES
370 CHROMATIN STRUCTURE
ChromEMT: Visualizing 3D chromatin structure and compaction in interphase and mitotic cells H. D. Ou et al.
RESEARCH ARTICLE SUMMARY: FOR FULL TEXT:
dx.doi.org/10.1126/science.aag0025

371 DNA NANOTECHNOLOGY
Reconfiguration of DNA molecular arrays driven by information relay J. Song et al.
RESEARCH ARTICLE SUMMARY: FOR FULL TEXT:
dx.doi.org/10.1126/science.aan3377

372 ULTRACOLD MOLECULES
Second-scale nuclear spin coherence time of ultracold NaK molecules J. W. Park et al.

375 X-RAY OPTICS
Spectral narrowing of x-ray pulses for precision spectroscopy with nuclear resonances K. P. Heeg et al.

378 ADHESIVES
Tough adhesives for diverse wet surfaces J. Li et al.

382 HIGH-PRESSURE PHYSICS
Synthesis of FeH₂: A layered structure with atomic hydrogen slabs C. M. Pépin et al.

385 LITHOGRAPHY
Direct optical lithography of functional inorganic nanomaterials Y. Wang et al.

389 CATALYSIS
Atomic-layered Au clusters on α-MoC as catalysts for the low-temperature water-gas shift reaction S. Yao et al.

393 GEOPHYSICS
Seismic evidence for partial melting at the root of major hot spot plumes K. Yuan and B. Romanowicz

397 NANO MATERIALS
Nanocrystalline copper films are never flat X. Zhang et al.

400 NEUROSCIENCE
Control of species-dependent cortico-motoneuronal connections underlying manual dexterity Z. Gu et al.

405 NITROGEN POLLUTION
Eutrophication will increase during the 21st century as a result of precipitation changes E. Sinha et al.

409 CANCER BIOMARKERS
Mismatch repair deficiency predicts response of solid tumors to PD-1 blockade D. T. Le et al.

414 PROTEOSTASIS
CAT-tailing as a fail-safe mechanism for efficient degradation of stalled nascent polypeptides K. K. Kostova et al.

ON THE COVER
Conceptual illustration of chromatin inside a cell’s nucleus. To fit in the nucleus and mitotic chromosomes, DNA is assembled into chromatin, the structure of which determines the functions of our genome. By painting cells with a DNA binding dye that deposits a metal dusting on the surface of DNA, Ou et al. were able to visualize the chromatin structure of the human genome. For more on the process behind the cover image, see http://scim.ag/2tUczje.
Illustration: Valerie Altounian/Science

Science Staff .............................................334
AAAS News & Notes ..................................365
New Products ........................................341
Science Careers .....................................419

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 © 2017 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): $1659. Foreign postage extra: Mexico, Caribbean (surface mail) $55; other countries (air assist delivery) $189. First class, airmail, student, and emeritus rates on request. Canadian rates with GST available upon request, GST #1254 8822. Publications Mail Agreement Number 10696624. 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 96778, Washington, DC 20090-6178. Single-copy sales: $23.00 current issue, $28.00 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.

Published by AAAS
28 JULY 2017 • VOL 357 ISSUE 6349 333

PHOTO: (TOP) J. LI ET AL.
PHOTO: (BOTTOM) J. LI ET AL.

353 & 385
Inorganic patterning

397 Copper’s ups and downs

378