

# CONTENTS

25 JUNE 2021 • VOLUME 372 • ISSUE 6549



1382

## NEWS

### IN BRIEF

**1372** News at a glance

### IN DEPTH

#### **1375** Delta variant triggers new phase in the pandemic

Scientists are probing why a fresh set of viral mutations is taking the world by storm  
*By K. Kupferschmidt and M. Wadman*

#### **1376** For WHO leader, a 'feeling that we're failing'

Tedros Adhanom Ghebreyesus had expected more social responsibility in the face of a global crisis  
*By J. Cohen*

#### **1378** Botox depression treatment raises eyebrows

Researchers cast doubt on study claiming strong evidence for the unusual treatment  
*By C. O'Grady*

PODCAST

#### **1379** At DOE, efforts to address climate and diversity dovetail

Proposed urban integrated field laboratories would reach out to minority communities  
*By A. Cho*

#### **1380** Advertisers could come for your dreams, researchers warn

Inserting ads into dreams may one day be feasible  
*By S. Moutinho*

#### **1381** What went wrong with CureVac's mRNA vaccine?

Company blames variants of the coronavirus, but type of RNA may have been key  
*By J. Cohen*

### FEATURES

#### **1382** A change in the air

Atmospheric science is overwhelmingly white. These Black scientists ignited a change  
*By P. Voosen*

## INSIGHTS

### POLICY FORUM

#### **1386** Inclusion in citizen science: The conundrum of rebranding

Does replacing the term "citizen science" do more harm than good?  
*By C. B. Cooper et al.*

### PERSPECTIVES

#### **1389** Two-dimensional ferroelectricity by design

A synthetic ferroelectric is made from a van der Waals assembly of boron nitride  
*By E. Y. Tsymbal*

REPORTS pp. 1458 & 1462

#### **1390** Repeat after Me(CP2)!

A motif of dinucleotide repeats in the genome may be associated with Rett syndrome  
*By J. Zhou and H. Zoghbi*

RESEARCH ARTICLE p. 1411

#### **1392** Hybrid immunity

COVID-19 vaccine responses provide insights into how the immune system perceives threats  
*By S. Crotty*  
REPORTS pp. 1413 & 1418

#### **1393** The chains of stress recovery

Ubiquitination primes the cell for recovery from heat stress  
*By D. Dormann*  
RESEARCH ARTICLES pp. 1409 & 1410

#### **1395** The complex landscape of recent human evolution

Archaic hominins in the Middle East underscore local demographic diversity in the last half million years  
*By M. Mirazón Lahr*  
REPORTS pp. 1424 & 1429

#### **1397** Amping up HIV antibodies

High serum titers of neutralizing antibody can protect humans against HIV  
*By D. R. Burton*

#### **1399** David B. Wake (1936–2021)

Pioneering evolutionary biologist and amphibian advocate  
*By K. R. Zamudio*

### BOOKS ET AL.

#### **1400** Cultivating discerning citizens

A pair of psychologists confront the obstacles that threaten to undermine scientific literacy  
*By S. M. Casner*

#### **1401** Envisioning the emotive mind

A neuroscientist recounts a career spent searching for insight into our psychic struggles  
*By S. T. Casper*



## LETTERS

**1402 Biodiversity research in a changing Afghanistan**

By D. Jablonski et al.

**1403 Developing countries must fund local research**

By E. Sanganyado

**1403 Science transcends national borders**

By A. Zhu et al.

## RESEARCH

## IN BRIEF

**1405** From *Science* and other journals

## REVIEW

**1408 Urban management**

Transformative climate adaptation in the United States: Trends and prospects

L. Shi and S. Moser

REVIEW SUMMARY; FOR FULL TEXT:  
DOI.ORG/10.1126/SCIENCE.ABC8054

## RESEARCH ARTICLES

## Cell biology

**1409** Ubiquitination is essential for recovery of cellular activities after heat shock

B. A. Maxwell et al.

RESEARCH ARTICLE SUMMARY; FOR FULL  
TEXT: DOI.ORG/10.1126/SCIENCE.ABC3593**1410** Ubiquitination of G3BP1 mediates stress granule disassembly in a context-specific manner

Y. Gwon et al.

RESEARCH ARTICLE SUMMARY; FOR FULL  
TEXT: DOI.ORG/10.1126/SCIENCE.ABF6548

PERSPECTIVE p. 1393

**1411 Epigenome**

MeCP2 is a microsatellite binding protein that protects CA repeats from nucleosome invasion

A. Ibrahim et al.

RESEARCH ARTICLE SUMMARY; FOR FULL TEXT:  
DOI.ORG/10.1126/SCIENCE.ABD5581

PERSPECTIVE p. 1390

**1412 Microbiology**The lysosomal Rag-Ragulator complex licenses RIPK1- and caspase-8-mediated pyroptosis by *Yersinia*

Z. Zheng et al.

RESEARCH ARTICLE SUMMARY; FOR FULL TEXT:  
DOI.ORG/10.1126/SCIENCE.ABG0269

## REPORTS

## Coronavirus

**1413** mRNA vaccination boosts cross-variant neutralizing antibodies elicited by SARS-CoV-2 infection

L. Stamatos et al.

**1418** Prior SARS-CoV-2 infection rescues B and T cell responses to variants after first vaccine dose

C. J. Reynolds et al.

PERSPECTIVE p. 1392

## Paleoanthropology

**1424** A Middle Pleistocene *Homo* from Neshar Ramla, Israel

I. Hershkovitz et al.

**1429** Middle Pleistocene *Homo* behavior and culture at 140,000 to 120,000 years ago and interactions with *Homo sapiens*

Y. Zaidner et al.

PERSPECTIVE p. 1395

**1434 Epigenetics**

MBD5 and MBD6 couple DNA methylation to gene silencing through the J-domain protein SILENZIO

L. Ichino et al.

**1439 Coronavirus**

Face masks effectively limit the probability of SARS-CoV-2 transmission

Y. Cheng et al.

**1444 Catalysis**

First-principles design of a single-atom-alloy propane dehydrogenation catalyst

R. T. Hannagan et al.

**1447 Superconductivity**

Discovery of a Cooper-pair density wave state in a transition-metal dichalcogenide

X. Liu et al.

**1452 Organic chemistry**

A tautomeric ligand enables directed C–H hydroxylation with molecular oxygen

Z. Li et al.

## Ferroelectrics

**1458** Stacking-engineered ferroelectricity in bilayer boron nitride

K. Yasuda et al.

**1462** Interfacial ferroelectricity by van der Waals sliding

M. Vizner Stern et al.

PERSPECTIVE p. 1389

**1466 Materials science**

Pressure-driven fusion of amorphous particles into integrated monoliths

Z. Mu et al.

## DEPARTMENTS

**1369 Editorial**

Work undone—HIV/AIDS in the USA

By Chris Beyrer

**1371 Editorial**

FDA's green light, science's red light

By Joel S. Perlmutter

**1474 Working Life**

Hear all voices

By Carolyn J. Adamski

## ON THE COVER

Digitally reconstructed skull of a hominin from 130,000 years ago. This previously unrecognized *Homo* group, identified at Neshar Ramla, Israel, sheds light on Neanderthal origins and the evolutionary history of the *Homo* lineage. Late membersof this group inhabited the Levant contemporaneously with *Homo sapiens* and interacted with them. See pages 1395, 1424, and 1429. *Illustration: Ariel Pokhojaev, Rachel Sarig, Hila May, Israel Hershkovitz*Science Staff ..... 1370  
Science Careers ..... 1471

SCIENCE (ISSN 0036-8075) is published weekly on Friday, except 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 © 2021 by the American Association for the Advancement of Science. The title SCIENCE is a registered trademark of the AAAS. Domestic individual membership, including subscription (12 months): \$165 (\$74 allocated to subscription). Domestic institutional subscription (51 issues): \$2148; foreign postage extra: Air assist delivery: \$98. First class, airmail, student, and emeritus rates on request. Canadian rates with GST available upon request. GST #125488122. 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 each plus shipping and handling available from backissues.sciencemag.org; bulk rate on request. **Authorization to reproduce** material for internal or personal use under circumstances not falling within the fair use provisions of the Copyright Act can be obtained through the Copyright Clearance Center (CCC), www.copyright.com. 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

**372 (6549)**

*Science* **372** (6549), 1369-1474.

**ARTICLE TOOLS**

<http://science.sciencemag.org/content/372/6549>

**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. The title *Science* is a registered trademark of AAAS.

Copyright © 2021 The Authors, some rights reserved; exclusive licensee American Association for the Advancement of Science. No claim to original U.S. Government Works.