

CONTENTS

14 MARCH 2025 • VOLUME 387 • ISSUE 6739

1138

NEWS

IN BRIEF

1128 News at a glance

IN DEPTH

1130 H5N1 avian flu is spreading rapidly in Antarctica

Expedition finds the virus in 13 bird and seal species around the Antarctic Peninsula
By S. Moutinho

1131 No sign that vaccine advisers are beholden to industry

RFK Jr. has claimed conflicts of interest must be rooted out of key CDC panel
By M. Wadman

1132 Studies seek signs of consciousness before birth

Fetal and infant brains offer clues to when human experience begins
By K. Servick

1134 In Ukraine, dam's destruction sets off a 'toxic time bomb'

Floods threaten to spread sediments laden with toxicants
By R. Stone
RESEARCH ARTICLE p. 1181

1135 Oceans' trenches are home to 'incredible' diversity

In trio of studies, scientists explore life in the mysterious hadal zone
By P. Jacobs

1136 NIH kills existing grants on transgender issues

Some termination letters cite "biological realities" to dismiss usefulness of such research
By S. Reardon

1137 Face to face with the first known Western European

At least 1.1 million years old, a fossil face suggests more than one type of early human inhabited Europe
By A. Gibbons

FEATURES

1138 Imperfect sounds

Cochlear implants give deaf kids unprecedented access to sound. But insisting they avoid using sign language may be risky
By C. O'Grady PODCAST

INSIGHTS

BOOKS ET AL.

1142 Science at Sundance 2025



PERSPECTIVES

1147 Making sense of fat in cancer

A lipid chaperone enables sensing of an essential fatty acid to drive tumor growth
By E. Jacinto
RESEARCH ARTICLE p. 1164

1148 Reading palms to characterize islands

Rattan palms illuminate the drivers of biodiversity in tropical Asia
By A. J. Holmquist and R. G. Gillespie
RESEARCH ARTICLE p. 1204

1150 How does Antarctic ice deform?

A deep-learning model infers large-scale dynamics of Antarctic ice shelves
By B. Riel
RESEARCH ARTICLE p. 1219

1151 Tunneling through cardiac jelly

Membrane projections from muscle cells enable signaling in the developing mouse heart
By J. L. de la Pompa
RESEARCH ARTICLE p. 1166

POLICY FORUM

1153 Large AI models are cultural and social technologies

Implications draw on the history of transformative information systems from the past
By H. Farrell et al.

LETTERS

1157 Support PhDs building deep-tech ventures

By T. Diamandis et al.

1158 The problem with AI dialogue at scale

By E. Nabavi et al.

1158 Response

By T. H. Costello et al.



1134 & 1181

Russian military destruction of the Kakhovka Dam in Ukraine caused considerable impacts to downstream ecosystems.

RESEARCH

IN BRIEF

1159 From *Science* and other journals

RESEARCH ARTICLES

Microbiology

1162 Trypanosome doublet microtubule structures reveal flagellum assembly and motility mechanisms *X. Xia et al.*
RESEARCH ARTICLE SUMMARY; FOR FULL TEXT: DOI.ORG/10.1126/SCIENCE.ADR3314

1163 Evolutionary adaptations of doublet microtubules in trypanosomatid parasites *M. H. Doran et al.*
RESEARCH ARTICLE SUMMARY; FOR FULL TEXT: DOI.ORG/10.1126/SCIENCE.ADR5507

1164 Signal transduction

Direct sensing of dietary ω -6 linoleic acid through FABP5-mTORC1 signaling *N. Koundouras et al.*
RESEARCH ARTICLE SUMMARY; FOR FULL TEXT: DOI.ORG/10.1126/SCIENCE.ADM9805
PERSPECTIVE p. 1147

1165 Immunology

Identification of antigen-presenting cell–T cell interactions driving immune responses to food *M. C. Campos Canesso et al.*
RESEARCH ARTICLE SUMMARY; FOR FULL TEXT: DOI.ORG/10.1126/SCIENCE.ADO5088

1166 Heart development

Tunneling nanotube–like structures regulate distant cellular interactions during heart formation *L. Miao et al.*
RESEARCH ARTICLE SUMMARY; FOR FULL TEXT: DOI.ORG/10.1126/SCIENCE.ADD3417
PERSPECTIVE p. 1151

1167 Organic chemistry

Excited-state configuration of nitroarenes enables oxidative cleavage of aromatics over alkenes *W. J. Olivier et al.*

1175 Chiral electronics

Circularly polarized electroluminescence from chiral supramolecular semiconductor thin films *R. Chowdhury et al.*

1181 Environmental science

Environmental effects of the Kakhovka Dam destruction by warfare in Ukraine *O. Shumilova et al.*
NEWS STORY p. 1134

1187 Piezoelectrics

Piezoelectricity in half-Heusler narrow-bandgap semiconductors *Y. Huang et al.*

1193 Paleontology

Mesozoic mammaliaforms illuminate the origins of pelage coloration *R. Li et al.*

1198 Atmosphere

Sunlight drives the abiotic formation of nitrous oxide in fresh and marine waters *E. Leon-Palmero et al.*

1204 Biogeography

Island geography drives evolution of rattan palms in tropical Asian rainforests *B. G. Kuhnhauser et al.*
PERSPECTIVE p. 1148

1209 Cosmic dust

Three-dimensional maps of the interstellar dust extinction curve within the Milky Way galaxy *X. Zhang and G. M. Green*

1214 Sustainability

Geological resource production constrained by regional water availability *K. Islam et al.*

1219 Ice shelves

Deep learning the flow law of Antarctic ice shelves *Y. Wang et al.*
PERSPECTIVE p. 1150

DEPARTMENTS

1127 Editorial

Uphold US-Canada science *By R. Quirion*

1226 Working Life

After the flood *By M. Rashid*

ON THE COVER

An optical image mosaic of the Milky Way galaxy shows a view looking toward the Galactic Center. The smooth band of starlight is occluded by dark clouds of interstellar dust, which absorbs and scatters background light (extinction), causing distant stars to appear fainter and redder. Variations in the properties of this dust extinction have been mapped in three dimensions using 130 million stellar spectra. See page 1209. Credit: ESO/Serge Brunier, CC BY 4.0 (<https://creativecommons.org/licenses/by/4.0/>)



Science Staff 1126
Science Careers 1225

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 © 2025 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): \$2865; Foreign postage extra: Air assist delivery: \$135. 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.science.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.