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Volume 649 Issue 8098, 22 January 2026

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Lost science

It is one year since Donald Trump began his second term as president of the United States and, with grant cuts and staff reductions, these 12 months have seen some seismic changes in US science. In this week's issue, *Nature* examines how the US research landscape has changed — and what that means for the future. Elsewhere, leading biomedical researchers reflect on the events of 2025, and US scientists discuss how research careers are being forced to adjust. The cover image is derived from a treemap — rendered in glass and then shattered — that visualizes more — show all

Cover image: Kim Albrecht

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This Week

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AI and nuclear energy feature strongly in agenda-setting technologies for 2026

Nature's annual list of technologies to watch is a chance to celebrate progress and stimulate research into both opportunities and risks.

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Editorial
15 Jan 2026

Making progress on global health will need high-quality evidence

Nature Health, the newest journal in the Nature Portfolio, aims to bridge the 'implementation gap' from research to policy and practice.

nature briefing
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Symmetrical arrangements of botanical motifs indicate a grasp of spatial division long before the advent of formal written numbers.

Research Highlight
16 Jan 2026

HPV vaccine could help to protect the unvaccinated against cervical cancer

A drop in precancerous growths in women who hadn't received the jab suggests the existence of a 'herd effect' against the virus.

Collection: Cancer at Nature Portfolio

Research Highlight
16 Jan 2026

Climate trends influence transatlantic flight times

Better understanding of multi-year global weather cycles could help airlines to reduce fuel consumption and cost.

Research Highlight
16 Jan 2026

Gifted dogs learn new words by overhearing humans

Particularly talented canines have sociolinguistic skills akin to those of young toddlers.

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US science in 2026: five themes that will dominate Trump's second year

The outlook has brightened for federal science budgets, but political appointees are likely to have a big say in how that funding is spent.

Jeff Tollefson, Max Kozlov & Dan Garisto

News
13 Jan 2026

How to improve vaccine uptake: a huge study offers clues

An analysis of more than one million people in the UK found that two-thirds of people who were vaccine-hesitant during the COVID-19 pandemic went on to get vaccinated.

Brian Owens

News
14 Jan 2026

Why is flu so bad this year? Highly mutated variant offers answers

A ferocious surge in influenza cases is linked in part to a variant that has not been dominant in the past few years — resulting in a waning of natural immunity.

Edward Chen

News
09 Jan 2026

Can't get motivated? This brain circuit might explain why – and it can be turned off

Scientists have uncovered a way to manipulate the brain pathway in monkeys that puts the brakes on motivation.

Lynne Peeples

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AIs are biased towards some Indian castes – how can researchers fix this?

Benchmarks reveal how artificial-intelligence systems reinforce discriminatory social hierarchies.

Mohana Basu

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Do their ears hang low? The genetics of dogs' adorable floppy ears

Scientists are just beginning to understand the signals that determine the length of dogs' ears.

Heidi Ledford

News
14 Jan 2026

Ice age wolf pup's stomach yields rare DNA from woolly rhino

A rare sample from a woolly rhinoceros reveals how the population changed in the lead-up to the species' extinction.

Rachel Fieldhouse

Features

News Feature
20 Jan 2026

US science after a year of Trump: what has been lost and what remains

A series of graphics reveals how the Trump administration has sought historic cuts to science and the research workforce.

Max Kozlov, Jeff Tollefson & Dan Garisto

News Feature
21 Jan 2026

Girls are starting puberty younger – why, and what are the risks?

More girls are hitting puberty at eight or earlier. Researchers are exploring the causes, the consequences and what should be done.

Cassandra Willyard

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Books & Arts

Book Review

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Forget formalism: mathematics was built on infighting and emotional turmoil

A fast-paced book captures how theory and formal proof intertwined with the personal lives of prominent mathematicians.

Ananyo Bhattacharya

Book Review
19 Jan 2026

'Greed is the iron cage of our times' – why nationalism is here to stay

A generation that missed out on economic growth is driving the trends overtaking politics today.

Roberto Patricio Korzeniewicz

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Opinion

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20 Jan 2026

Trump one year on: How six US researchers plan to protect science amid chaos and cuts

From education to pandemic preparedness and public health, the past year has seen huge stress put on US science.

Amander Clark, Hank Greely ... Ramanan Laxminarayan

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US funding cuts harm aspiring young scientists, too

William Y. Xuan

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To gain public trust, make art central to science communication

Palina Kot

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Study decision-making to understand how technology will affect behaviour

Shahar Hechtlinger, L. A. Paul & M. J. Crockett

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Fossil-fuel phase out is not enough: countries must remove atmospheric carbon

Richard H. Clarke & Mark Maslin

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'Shattered': US scientists speak out about how Trump policies disrupted their careers

Researchers lay bare the human toll of lay-offs, funding cuts and attacks on science one year after the president's return to the White House.

Virginia Gewin

Technology Feature

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From quantum computing to mRNA therapeutics: seven technologies to watch in 2026

Nature's round-up of innovations that are poised to make a splash in the year ahead.

Michael Eisenstein

Collections: Technologies to Watch NatureTech

Where I Work

Where I Work
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Floating science stations: my month on a research vessel looking after buoys

Physical oceanographer Melina M. Martinez finds ways to gather ocean data off the coast of Argentina.

Christine Ro

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Of all the quarries: Casablanca fossils reveal African ancestors of *Homo sapiens*

Surprising fossil finds in a Moroccan quarry reveal 773,000-year-old hominin specimens that are close to the ancestor of modern humans.

Antonio Rosas

News & Views
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Nationwide genetic screening proves effective at catching disease risk early

A study in Australia supports genetic screening in young adults before symptoms show, but the generalizability and cost–benefit ratios need to be examined in other settings.

Teri A. Manolio

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Chronic pain could be eased by uncoupling the sensory and emotional experiences

Researchers identify the neurons involved in the emotional distress associated with pain, and design a genetic approach that could soothe suffering without opioid drugs.

Nicolas Massaly & Monique L. Smith

News & Views
15 Dec 2025

How fasting boosts breast cancer therapy

A discovery in mice reveals why fasting enhances a type of breast cancer treatment — a hormone-signalling pathway and gene-expression changes have key roles.

Stephen D. Hursting

Collection: Cancer at Nature Portfolio

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Mistaken identity and the psychology of human recognition

The accuracy of eyewitness evidence is questioned, and a fossil collection examined when a geological society moves its London home in this week's pick from the *Nature* archive.

News & Views
21 Jan 2026

Quantum effect observed for biggest objects yet

An experiment has broken the size record for an object exhibiting matter-wave interference — fuelling the debate about possible size constraints.

Tim Kovachy

Reviews

Review Article
21 Jan 2026

Symmetry, microscopy and spectroscopy signatures of altermagnetism

The symmetry, microscopy and spectroscopy signatures of altermagnetism are reviewed, and compared with traditional ferromagnetism and Néel antiferromagnetism, and magnetic phases with symmetry-protected compensated non-collinear spin orders.

Tomas Jungwirth, Jairo Sinova ... Libor Šmejkal

Articles

Article
21 Jan 2026

Large-scale dynamos driven by shear-flow-induced jets

Aadvanced computer simulations of three-dimensional turbulence reveal that the ab initio generation of large-scale magnetic fields is driven by shear-flow-induced jets; an analytical model is derived which reproduces the essential features of the flow- and field-generation mechanisms.

B. Tripathi, A. E. Fraser ... R. Fan

Article
21 Jan 2026

Accretion bursts crystallize silicates in a planet-forming disk

The detection of forsterite and enstatite emissions in EC 53 during accretion bursts marks one of the first pieces of direct evidence of in situ silicate crystallization in young stars.

Jeong-Eun Lee, Chul-Hwan Kim ... Hyerin Jang

Article
14 Jan 2026

Trapping of single atoms in metasurface optical tweezer arrays

Single strontium atoms are trapped in optical tweezer arrays generated via holographic metasurfaces, overcoming a critical barrier to realizing scalable neutral-atom quantum technologies.

Aaron Holman, Yuan Xu ... Sebastian Will

Article
Open Access
21 Jan 2026

Probing quantum mechanics with nanoparticle matter-wave interferometry

Quantum interference of sodium nanoparticles, which can each contain more than 7,000 atoms at masses greater than 170,000 Da, is demonstrated.

Sebastian Pedalino, Bruno E. Ramírez-Galindo ... Stefan Gerlich

Article
02 Dec 2025

Bulk superconductivity up to 96 K in pressurized nickelate single crystals

Bulk superconductivity has been observed up to 96 K in pressurized bilayer nickelate single crystals which were synthesized under ambient pressure.

Feiyu Li, Zhenfang Xing ... Junjie Zhang

Article
14 Jan 2026

Sub-zero Celsius elastocaloric cooling via low-transition-temperature alloys

A compression-based, regenerative elastocaloric cooling device using low-transition-temperature tubular NiTi units in a cascaded configuration, which show superelasticity and substantial entropy changes, allows the construction of a sub-zero Celsius refrigeration system without refrigerant gases.

Guoan Zhou, Zexi Li ... Qingping Sun

Article
Open Access
14 Jan 2026

3D-printed low-voltage-driven ciliary hydrogel microactuators

3D-printed gel microcilia arrays printed by two-photon polymerization and composed of a soft acrylic acid-co-acrylamide hydrogel with a nanometre-scale network structure are shown to respond to low-voltage electrical stimuli within milliseconds, enabling dynamic individual control and non-reciprocal 3D motion.

Zemin Liu, Che Wang ... Metin Sitti

Article
Open Access
14 Jan 2026

Global subsidence of river deltas

Spatially variable surface-elevation changes across 40 global deltas using interferometric synthetic aperture radar are reported.

L. O. Ohenhen, M. Shirzaei ... G. C. Yemele

Article
Open Access
07 Jan 2026

Early hominins from Morocco basal to the *Homo sapiens* lineage

New hominin fossils from the Grotte à Hominidés at Thomas Quarry I (ThI-GH) in Casablanca, Morocco, dated to around 773 thousand years ago are similar in age to *Homo antecessor*, yet are morphologically distinct.

Jean-Jacques Hublin, David Lefèvre ... Abderrahim Mohib

Article
Open Access
12 Nov 2025

Rare genetic variants confer a high risk of ADHD and implicate neuronal biology

An analysis of rare genetic variants identifies three genes—*MAP1A*, *ANO8* and *ANK2*—that have a role in attention deficit hyperactivity disorder (ADHD) and investigates the potential underlying biological mechanisms.

Ditte Demontis, Jinjie Duan ... Anders D. Børglum

Nature Outlook: ADHD

Article
Open Access
05 Nov 2025

Specificity, length and luck drive gene rankings in association studies

Genetic association tests prioritize candidate genes based on different criteria.

Jeffrey P. Spence, Hakhamanesh Mostafavi ... Jonathan K. Pritchard

Article
26 Nov 2025

No meta-analytical effect of economic inequality on well-being or mental health

A meta-analysis of 168 studies reveals that economic inequality is not significantly associated with subjective well-being or mental health.

Nicolas Sommet, Adrien A. Fillon ... Annahita Ehsan

Article
Open Access
07 Jan 2026

Mimicking opioid analgesia in cortical pain circuits

The anterior cingulate cortex encodes affective pain behaviours modulated by opioids; targeting opioid-sensitive neurons through a new chemogenetic gene therapy replicates the analgesic effects of morphine, providing precise chronic pain relief without affecting sensory detection.

Corinna S. Oswell, Sophie A. Rogers ... Gregory Corder

Article
Open Access
17 Dec 2025

Astrocyte CCN1 stabilizes neural circuits in the adult brain

Neural circuits in adult mouse visual cortex are stabilized by astrocytes, which secrete CCN1, resulting in reduced plasticity and increased maturation of multiple cell types.

Laura Sancho, Matthew M. Boisvert ... Nicola J. Allen

Article
Open Access
17 Dec 2025

Lesion-remote astrocytes govern microglia-mediated white matter repair

After spinal cord injury, lesion-remote astrocytes acquire heterogeneous, spatially restricted reactivity states that shape neuroinflammation, neural repair and neurological recovery.

Sarah McCallum, Keshav B. Suresh ... Joshua E. Burda

Article
Open Access
03 Dec 2025

The Microflora Danica atlas of Danish environmental microbiomes

Microflora Danica—an atlas of Danish environmental microbiomes—reveals that although human-disturbed habitats have high alpha diversity, species reoccur, revealing hidden homogeneity.

C. M. Singleton, T. B. N. Jensen ... M. Albertsen

Article
Open Access
26 Nov 2025

Long-read metagenomics reveals phage dynamics in the human gut microbiome

Complex prophage integration dynamics, including low-level induction, cross-family host range and transposase-mediated mobilization, challenge existing paradigms and deepen our understanding of phage–bacterial interactions in the human gut microbiome.

Jakob Wirbel, Angela S. Hickey ... Ami S. Bhatt

Article
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26 Nov 2025

iHALT unlocks liver functionality as a surrogate secondary lymphoid organ

Liver-restricted viral infection in mice results in secondary lymphoid organ dormancy and the compensatory induction of specialized lymphoid tissue in the liver, the structural features and functional outputs of which are closely mirrored in humans.

John Gridley, David Pak ... Arash Grakoui

Article
Open Access
03 Dec 2025

Architecture of the neutrophil compartment

Mapping of the neutrophil compartment using single-cell transcriptional data from multiple physiological and patological states reveals its organizational architecture and how cell state dynamics and trajectories vary during health, inflammation and cancer.

Daniela Cerezo-Wallis, Andrea Rubio-Ponce ... Iván Ballesteros

Article
Open Access
10 Dec 2025

Fasting boosts breast cancer therapy efficacy via glucocorticoid activation

Beneficial effects of fasting combined with endocrine therapy for oestrogen receptor-α-expressing breast cancers can be recapitulated using exogenous glucocorticoid receptor ligands instead of fasting to reduce harmful effects.

Nuno Padrão, Tesa M. Severson ... Wilbert Zwart

Article
Open Access
12 Nov 2025

Cytosolic acetyl-coenzyme A is a signalling metabolite to control mitophagy

Acetyl-coenzyme A functions as a non-canonical signal to trigger mitophagy, and the acetyl-coenzyme A–NLRX1 axis underlies the KRAS-inhibitor-induced mitophagy response and promotes drug resistance, providing a metabolic mechanism of KRAS inhibitor resistance.

Yifan Zhang, Xiao Shen ... Qun-Ying Lei

Article
Open Access
26 Nov 2025

Inhibitors supercharge kinase turnover through native proteolytic circuits

Inhibitor-induced kinase degradation is a common event that positions supercharging of endogenous degradation circuits as an alternative to classical proximity-inducing degraders.

Natalie S. Scholes, Martino Bertoni ... Georg E. Winter

Article
Open Access
06 Nov 2025

An ATP-gated molecular switch orchestrates human mRNA export

The ATPase UAP56 acts as an ATP-gated molecular switch that directs mRNA ribonucleoprotein complexes from TREX to nuclear-pore-complex-anchored TREX-2 complexes for mRNA export from the nucleus.

Ulrich Hohmann, Max Graf ... Clemens Plaschka

Article
Open Access
19 Nov 2025

ZAK activation at the collided ribosome

The kinase ZAK is activated at collided ribosomes to mediate the ribotoxic stress response.

Vienna L. Huso, Shuangshuang Niu ... Roland Beckmann

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Amendments & Corrections

Author Correction
Open Access
04 Jan 2026

Author Correction: Repulsions instruct synaptic partner matching in an olfactory circuit

Zhuoran Li, Cheng Lyu ... Liqun Luo

Author Correction
Open Access
04 Jan 2026

Author Correction: Rewiring an olfactory circuit by altering cell-surface combinatorial code

Cheng Lyu, Zhuoran Li ... Liqun Luo

Author Correction
08 Jan 2026

Author Correction: Structural insights into BCDX2 complex function in homologous recombination

Yashpal Rawal, Lijia Jia ... Shaun K. Olsen

Author Correction
23 Dec 2025

Author Correction: Rolling back human pluripotent stem cells to an eight-cell embryo-like stage

Md. Abdul Mazid, Carl Ward ... Miguel A. Esteban

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Collections

Nature Outlook
21 Jan 2026

ADHD

Rates of ADHD have been rising quickly in recent decades, for reasons that are not entirely clear.

Technology Feature
21 Jan 2026

Technologies to Watch

Each year Nature polls manuscript editors both within the magazine and from sister journals to identify the technologies they think are poised to have a big impact in the year ahead.

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