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Sarah Crunkhorn

Flight path

The Cover Story article Impression of Archaeopteryx, the oldest known fossil bird, which had some 150 million years ago in the Late Jurassic. Original © Simon and colleagues

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Cover Image Credit: Lennart Olson; by Professor Simon

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This Week

Editorial

Editorial
27 May 2025

End racism in science: there shouldn't be any argument about this now

Nature's Editorial Team urges high-income countries, in response to a recent executive order from the US government, to welcome scientists who are fleeing countries where racism and discrimination are widespread.

World View
27 May 2025

Farmers can capture the US brain drain – if it is fair

Charlotte Lozier Institute's Jenny Kim argues that US agricultural expertise is crucial for the top destination for scientists.

Maria M. Mota

Research Highlights

Research Highlight
27 May 2025

Don't feel the pain – these brain cells help with managing opioid withdrawal

Mice that have had their brain cells activated by opioids are less likely to show withdrawal symptoms when being weaned off opioid use.

Research Highlight
27 May 2025

Telescope team reads the fine print — from more than a kilometre away

Researchers have developed a new optical method to read text from 1.6 km away, even though the text is just a few millimetres tall.

Research Highlight
13 May 2025

Exclusive volcanoes can bury carbon – a climate boon

Ash spread by violent eruptions in South America can help to lock away carbon dioxide.

Research Highlight
13 May 2025

What big eyes this whale has – but not the better to see you with

The hexagonal shape has the smallest amount of nonspherical lens and is one of the most striking seabird's fishing gear.

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News in Focus

News

News
29 May 2025

US trade drama: Nature's guide to the initiatives dropping scientists abroad

Nature's guide to the initiatives dropping scientists abroad Trump's executive order has prompted several countries to attract talent.

Nisha Gaind, Rachel Feltman, ... Giorgia Guglielmi

News
27 May 2025

I told AI to make me a protein. Here's what it came up with

A new suite of artificial intelligence tools can design proteins from scratch and even autocomplete antibodies.

Saeed Saberyan

News
27 May 2025

AI linked to explosion of low-quality biomedical research papers

Andrew Gelman, a statistician at Columbia University, has been a vocal critic of the problems with poor research.

Miryam Naddaf

News
27 May 2025

Simple particle acts as a quantum computer to simulate molecules

A trapped atomium ion can be used to simulate changes in the energy levels of organic molecules interacting with light.

Davide Castelvecchi

News
27 May 2025

Science's 'Gotham effect': PhDs bear brunt of territorial behaviour

Competition and cost of living in US cities shapes research dropouts' response to the local and professional landscape — but early-career researchers are most affected.

Julian Nowogrodzki

News
27 May 2025

World first: ultra-powerful CRISPR treatment trialled in a person

Variants of fetal hemoglobin can compensate for the loss of adult hemoglobin in people with sickle cell disease.

Heidi Ledford

News Explainer
27 May 2025

NSF plans to slash 'indirect' science funding: will it stick?

Under the terms of a deal struck by the White House, universities would be asked to accept no indirect-cost payments on research grants.

Dan Garisto

Collections: New Trump 2.0 & reshaping science

Features

Feature
28 May 2025

Brain drugs can now cross the once-impenetrable blood–brain barrier

New technologies to shuttle drugs into the brain are showing promise in Alzheimer's disease, cancer and more.

Alison Abbott

Feature
27 May 2025

Cancer-fighting immune cells could soon be engineered inside our bodies

Manufacturing CAR T cells in the laboratory is expensive and time-consuming. So in vivo approach could get the powerful therapy to more people.

Cassandra Willyard

Collections: Cancer at Nature Portfolio

Sponsored content

New home for personalized medicine

A new institute in Japan aims to produce digital twins of patients to find the best treatments and bring more personalized medicine to clinics.

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Books & Arts

Book Review

Book Review
27 May 2025

Gripping account of psychology's cautionary tale is marred by flawed assumptions

A depiction of the field's missteps and what the controversy can teach us about how to study human behaviour.

Edward Machery & John M. Doris

Arts Review

Arts Review
29 May 2025

'Powerful and fourth-line': David Attenborough's latest film is a cry to protect our oceans

The host and team at Alive Studios discuss their new film Ocean, the dynamic relocation and transplantation of coral reefs, and more.

Chris Henry

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Opinion

Obituary

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27 May 2025

Richard Garwin obituary: designer of the hydrogen bomb who advocated for arms control

The particle physicist and inventor died on 7 October 2024 — whether they would love or not.

Ann Finkbeiner

Comment

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22 May 2025

Why space exploration must not be left to a few powerful nations

Indigenous people and others need a say in space industry decisions. Here's how that can happen.

Tricia Sgambelluri, Alice Gorman, ... Ryall Tucker

Correspondence

Correspondence
27 May 2025

Taking common medicines might matter for cancer treatment

Tsuneya Ohno, Mamoru Tabuchi

Correspondence
27 May 2025

Address academic bullying through structural reform

Steven Bell

Correspondence
27 May 2025

Global measles eradication goal is urgently needed

Gayatri Sundaram, Jon Abbott, Yvonne Maldonado

Correspondence
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The forest space age needs eyes on the ground

Oliver Phillips, Bruno Gaspar, ... Ani Garcia de Si

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Work

Feature

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29 May 2025

Scientists with ADHD speak up: when flyy meets focus

Researchers with the neurodevelopmental condition discuss its pubic and workplace challenges and how they structure their work lives to succeed.

Julian Nowogrodzki

Technology Feature

Technology Feature
22 May 2025

How artificial intelligence is transforming pathology

Some researchers say that deep learning 'foundation' models will revolutionize the field — but others are not so sure.

Elena Rosa

Collections: Cancer at Nature Portfolio, AI-Assisted Pathology, Nature Hub

Where I Work

Where I Work
27 May 2025

I study my amoeb: science training to empower Tanzania's outspoken farmers

Hamisa Kamtoi supports scientific connections to enhance how healthcare and crop diseases are tackled.

James Mitchell Crow

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Research

News & Views

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Track-record assessors split early-reactle claw prizes found

Fault-related pores are unable to make their mechanisms, while the mechanism of the four-limbed group of animals called tetrapods, began to evolve.

Stuart L. Sumida

News & Views
29 May 2025

Black hole flings out clumps of gas

Astronomers have observed a black hole ejecting several dense pockets of gas — a finding that calls for a rethink of how black holes interact with their host galaxies.

Marcella Bucchieri

News & Views
29 May 2025

Psychedelics reduce fear by targeting immune cells that modulate brain cells

Researchers have shown that psychedelics can reduce fear responses in mice by acting on immune cells that have a role in modulating the interactions between brain cells.

Yun Chen & Maria Lykiardopoulou

News & Views
29 May 2025

How and when North America's deepest river gorge formed

An analysis of landscape features and river sediments has revealed that a series of 1-million-years-ago flat-topped the formation of Hells Canyon.

Andrea Hilchcock

News & Views
29 May 2025

The cell-division cycle is faster in cell types prone to forming cancer

Some types of cell are more likely than others to give rise to tumours. A spell cell cycle is one key molecular feature of cancer susceptibility.

Helen E. Matthews

Collections: Cancer at Nature Portfolio

Reviews

Review Article
28 May 2025

The shaping of terrestrial planets by late accretion

Differences in the rate of late accretion in the long-term evolution of terrestrial planets are shown to possibly lead to distinct geophysical and chemical properties, including habitability and biosignatures.

Matthias Meier, Andreas Reufer & Rajdeep Dasgupta

Review Article
29 May 2025

The history and future of rooting-state functional magnetic resonance imaging

This Review provides an overview of the history of resting-state functional MRI research, which has led to fundamental insights into the functional organization of the brain, and discusses its potential for clinical applications and the challenges that must be overcome to realize this potential.

Bharat B. Biswal & Xiaowei Li Lindo

Articles

Article
14 May 2025

Structured textual retrieval-shooting war from a manor at relatively speech

Here we report the discovery of a 1.5-million-year-old fossil bird from China that had a short, straight beak, a keeled sternum and a feathered tail. Its mosaic anatomy sheds new light on the early evolution of birds.

Wen-Hulan, Maximilia Nadi, ... Yuong Xu

Article
29 May 2025

Quasar radiation transforms the gas in a merging companion galaxy

We demonstrate that in major merging systems, the gas in the galaxy that is closer to the quasar can be powerful in the companion galaxy.

Sergei Balashev, Pasquier Noterdaeme, ... Rodrigo Carrillo

Article
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Bulk, spatiotemporal vortex correspondence in cryomagnetic zero-index media

Here we report the experimental realization of a zero-index metal, a conventional metal at cold liquid-helium temperatures, suitable to be used for the generation of high-power, coherent terahertz waves.

Ruo-Yang Zhang, Xiaofei Cui, ... C. T. Chan

Article
29 May 2025

Hidden states and dynamics of fractional fillings in twisted MoTe2 bilayers

Twisted multilayer graphene research demonstrates its unique properties, such as the existence of fractional fillings of Chern bands, reveals many hidden states that have not been previously observed and which could host exotic topological phases.

Bijuna Bera, Yuwen Liu, ... Jiaqiang Yan & Jie Shan

Article
29 May 2025

Encapsulated Cr–N alloy boosts high-temperature CO2 electroreduction

An overview of the alloy-encapsulation strategy to boost CO2 electroreduction at high activity and stability for high-temperature CO2 to CO conversion, overcoming the limitations of such catalysts typically used in industrial applications.

Wenchao Ma, Junli Wang, ... Bin Liu & Jianping Xiao

Article
29 May 2025

Radiative feedback explained the early twenty-first-century increase in land albedo

Effects of snow cover dynamics, land use or land cover conversions and non-conversion regimes on albedo variations during 2001–2020 are quantified and their relative contributions to albedo changes are identified, revealing substantial underestimation by current models.

Zhongyang Hou, Haibing Zhang, ... Longyan Zhang

Article
29 May 2025

Lost ice core driven weather prediction

Here we report a machine learning model that can capture the entire numerical weather prediction pipeline with a machine learning model, by producing accurate forecasts directly from observations, without relying on data assimilation or initialization with numerical weather prediction systems.

Anna-Maria, Stefan Rüdisühli, ... Richard Forbes

Article
29 May 2025

A foundation model for the Earth system

Aurora, a new large-scale foundation model trained on more than one million hours of diverse geophysical data, outperforms operational forecasts in predicting air quality, ocean wave dynamics, tropical cyclone tracks and high-resolution weather forecasts.

Cristian Bodnar, Wessel P. Bruinsma, ... Richard E. Turner

Article
29 May 2025

Thermal asymmetry in the Moon's mantle inferred from monthly tidal response

Data from the GRAIL mission are used to show that the Moon's mantle is laterally heterogeneous, with a substantially thermal anomaly in the nearside mantle, which is consistent with the presence of a large, hot, low-seismic-velocity province.

A. S. Konopliv, R. Park, ... W. V. Willams

Article
29 May 2025

Earliest amniote tracks recalibrate the timeline of tetrapod evolution

Analyses of a fossil trackway from the earliest Carboniferous of Australia show that it was left by stem-amniotes, suggesting that the origin of amniotes was at least 15–40 million years earlier than previously thought.

John A. Long, Georgina Mackintosh, ... Per E. Ahlberg

Article
29 May 2025

Chicxulub asteroid impact is the key to the early evolution of the avian lineage

Analysis of a fossil bird from the Late Cretaceous of Kazakhstan reveals a mosaic mix of modern and primitive traits, providing information on the evolution of avian diversity.

Jingmai O'Connor, Alexander Clark, ... Han Hu

Article
29 May 2025

Drivers of avian genomic change revealed by evolutionary rate decomposition

Genome evolutionary rates are decomposed to the ancestral lineages and genes driving rate variation across the phylogeny.

David A. Duchêne, M. Astrid Chevalier, ... Simon Y. W. Ho

Article
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Translational promotion of neoantigenicity in a TACI-DeP individuals

Here we report a machine learning model that can capture the entire numerical weather prediction pipeline with a machine learning model, by producing accurate forecasts directly from observations, without relying on data assimilation or initialization with numerical weather prediction systems.

Konstantinos Vardarakos, Lorraine Southam, ... DeProteo Sugiyo

Article
29 May 2025

Cornerstone-driven neural inventory of a complete visual system

A connectome of the entire fruit fly brain is presented together with an annotation scheme of genetic drivers and hard-to-a comprehensive census type catalogue.

Alexander Bates, Emil Kind, ... Gregory S. X. E. Jefferis

Article
29 May 2025

Changes in neurotensin signalling drive hedonic devaluation in obesity

Here we report a machine learning model that can capture the entire numerical weather prediction pipeline with a machine learning model, by producing accurate forecasts directly from observations, without relying on data assimilation or initialization with numerical weather prediction systems.

Nina Vogel-Ciernia, Amanda Tsai, ... Stephen Liberles

Article
14 May 2025

Generation of human adult hepatocytes organoids with metabolic functions

The combined activation of Wnt and LIF/JAK signalling enables long-term self-renewal of human hepatocytes organoids, maintaining hepatic identity, supporting genome editing and recapitulating key metabolic functions of adult hepatocytes, including bile acid synthesis and detoxification.

Rui Ignacio, Miguel Lillo, ... Xuekui Sun

Article
14 May 2025

Multi-sized liver organoids from human attachment stem cells

Here we report a machine learning model that can capture the entire numerical weather prediction pipeline with a machine learning model, by producing accurate forecasts directly from observations, without relying on data assimilation or initialization with numerical weather prediction systems.

Hannah M. Ruley, Connie Jackaman, ... Tahereh Tabatabaei

Article
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MYSM1 is an entry receptor for omicron SarsCov2

Here we report a machine learning model that can capture the entire numerical weather prediction pipeline with a machine learning model, by producing accurate forecasts directly from observations, without relying on data assimilation or initialization with numerical weather prediction systems.

Jamin Verstrete, Ally Ye, ... Ian C. Cuesta

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Psychedelic control of neuroimmune interactions processing fear

Here we report a machine learning model that can capture the entire numerical weather prediction pipeline with a machine learning model, by producing accurate forecasts directly from observations, without relying on data assimilation or initialization with numerical weather prediction systems.

Elizabeth N. Chung, Chen Li, ... Michael A. Wheeler

Article
14 May 2025

Constitutively active glucagon receptor drives high blood glucose in birds

Here we report a machine learning model that can capture the entire numerical weather prediction pipeline with a machine learning model, by producing accurate forecasts directly from observations, without relying on data assimilation or initialization with numerical weather prediction systems.

Chang Zhang, Yongjie Liu, ... Yi Zhu

Article
14 May 2025

Clinically relevant cbe resolution via a thromboinflammation on a chip

In thromboinflammatory, early-stage thrombosis is driven by immune responses, whereas established lysine function, prophylactic defibrillate and nonagonists inhibitors can be used to prevent thrombosis. Here we report a machine learning model that can capture the entire numerical weather prediction pipeline with a machine learning model, by producing accurate forecasts directly from observations, without relying on data assimilation or initialization with numerical weather prediction systems.

Yongzhi Xia, Jessica Lin, ... Wilbur A. Lam

Article
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Cell cycle duration determines oncogenic transformation capacity

Here we report a machine learning model that can capture the entire numerical weather prediction pipeline with a machine learning model, by producing accurate forecasts directly from observations, without relying on data assimilation or initialization with numerical weather prediction systems.

Carmen Chan, Sujing Liu, ... Axel Behrens

Article
29 May 2025

Plasticity of the mammalian integrated stress response

A study describes the mammalian integrated stress response mechanism characterized by reduced eIF2B activity without eIF2α phosphorylation, which sustains the eIF4F–eIF4E axis, enabling metabolic reprogramming.

Chen-Wen Chen, Dahlia Doughty, ... Ivan Topisirovic

Article
29 May 2025

DNA-guided transcription factor interactions extend human gene regulatory code

A large-scale analysis of DNA-based transcription factor (TF) cooperativity reveals that the majority of TF interactions, and identifies a composite sequence motif that explains the binding and function of the SOX2–OCT4 complex.

Zhiyuan Chu, Yan Huang, ... Yuwei Zhang

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Amendments & Corrections

Author Correction
15 May 2025

Author Correction: Pycnodont oxygenation bracket-cell network plasticity induced by experience regulates adult learning

Peter Dayan, Sadegh Nobari & Narayan & Ben Cacace

Author Correction
15 May 2025

Author Correction: Matrix-producing neutrophils associate and shield the skin

Ana Cristina Costa, Ellen Clarke, ... Andrew Hidalgo

Author Correction
15 May 2025

Author Correction: 2022 summer warmth unparalleled over the past 2 000 years

Ian Eisen, Max Torbenson & Will Hobbins

Author Correction
15 May 2025

Author Correction: Microbiota-derived 1,3,5-HAA influences chemotherapy efficacy in pancreatic cancer

Joseph Tintelnot, Yang Xu, ... Alexander Muir

Publisher Correction
29 May 2025

Publisher Correction: Stress-frustrated cell membrane reservoirs control osmotic swelling

Liang Yang, Chen Dun, ... Yihui Cui

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Spotlight

Spotlight
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Singapore

Architectural icons and lush vegetation expands Singapore's concrete city of the future into the world that balance development with biodiversity.

Nature Outlook 2025 NYS AMC Update · 2024-2025 global