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BY JONATHAN T. BUTCHER • 18 FEB 2026

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SOCIAL AND INTERDISCIPLINARY SCIENCES AND PUBLIC HEALTH

Assessing the health risks of rice cadmium content standards in China

BY HAIYAN CHU, HUILIN ZHANG, DAHUA REN, XUANYING JIANG, YANG YU, JIALEI ZHU, KEXIN LI, HAIPING LIU, LINFAN XU, XIAOTING LI, ZHEN DING • 20 FEB 2026

The current rice cadmium limit is insufficient to safeguard human health, warranting stricter thresholds.

ABSTRACT

Multiple southward migrations of Neolithic Chinese farmers into Southeast Asia revealed from large-scale Y-chromosome sequences

BY MENGGE WANG, YUNHUI LIU, LINTAO LUO, ZHIYONG WANG, YUHANG FENG, TING YANG, JING CHEN, YUFENG LIU, YUGUO HUANG, QIUXIA SUN, [...] GUANGLIN HE +8 authors 18 FEB 2026

Large-scale East Asian Y-chromosomes reveal multiple waves of Neolithic farmer contributions to Southeast Asian patrilineages.

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BY HUA TU, XIAOBO FENG, LAN LUO, ZHONGPING LAI, DARRYL GRANGER, CHRISTOPHER BAE, GUANJUN SHEN • 18 FEB 2026

Isochron ^{26}Al/^{10}Be burial dates at 1.77 Ma make Yunxian the oldest in situ–discovered *Homo erectus* fossil site in eastern Asia.

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Popularity trumps quality when people are influenced by popularity ranks rather than counts.

ABSTRACT

Human microglia in brain assembloids display region-specific diversity and respond to hyperexcitable neurons carrying *SCN2A* mutation

BY JIAXIANG WU, XIAOLING CHEN, JINGLIANG ZHANG, KYLE WETTSCHURACK, MORGAN ROBINSON, WEIHAO LI, YUANRUI ZHAO, YE-EUN YOO, BRODY A. DEMING, YUE SHU, [...] YANG YANG +9 authors • 18 FEB 2026

Organoid assembloids reveal regionally diverse microglia that respond to hyperexcitable midbrain-striatal circuits.

ABSTRACT

Selective attention to auditory and visual modalities converges onto noncholinergic basal forebrain neurons

BY SZ-WEN LIU, SHIH-CHIEH LIN • 20 FEB 2026

During selective attention, sensory streams are filtered in parallel and summed linearly in the basal forebrain.

ABSTRACT

Redox therapy for neuropsychiatric disorders: Molecular mechanisms and biomarker development

BY KYLE W. CUKLANZ, ABIGAIL STEIN, VIRGINIE-ANNE CHOUINARD, DOST ONGUR, FEI DU • 18 FEB 2026

Redox therapy may restore brain energy deficits, underscoring the need for in vivo biomarkers to guide personalized treatments.

ABSTRACT

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BY MAX O. KLUGER, RICHARD A. MELCHERT, JOSÉ M. MORATALLA, TEHNUKA ILANKO, DAVID J. LOWE, VICKI G. MOON, PILAR VILLAMOR, JORDANKA CHANEVA, NIC ROSS, ROLANDO P. ORENSE 18 FEB 2026

CT images of lacustrine volcanic-ash layers ⩽8 cm thick provide a key liquefaction database for seismic hazard assessments.

ABSTRACT

Degradation of fish food webs in the Anthropocene

BY JUAN D. CARVAJAL-QUINTERO, MARIA DORNELAS, LISE COMTE, JULIANA HERRERA-PÉREZ, PABLO A. TEDESCO, XINGLI GIAM, ULRICH BROSE, JONATHAN M. CHASE • 18 FEB 2026

The decrease in body size driven by the selective species turnover is widely altering fish food web topology and function.

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Summer SST covariability across the North Pacific and North Atlantic may be linked to Arctic sea-ice loss and climate change.

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Increasing synchronicity of global extreme fire weather constrains fire suppression coordination and exacerbates air pollution.

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Propagation of the Madden-Julian oscillation as a deterministic chaotic phenomenon

BY DAISUKE TAKASUKA, TAMAKI SUEMATSU, HIROAKI MIURA, MASUO NAKANO • 18 FEB 2026

MJO propagation is not described by linear modes but characterized by chaotic behavior with the regime bifurcation.

ABSTRACT

Machine learning-based paleobathymetric reconstructions using archaeal lipid biomarkers

BY JIAMING ZHOU, DUJUAN KANG, SHIJIE CHEN, LIANG DONG • 20 FEB 2026

Lipid biomarkers in ocean sediments reveal ancient seafloor depths and tectonic shifts.

ABSTRACT

Optimal choice of proxy for cloud condensation nuclei reduces uncertainty in aerosol-cloud-climate forcing

BY HAILING JIA, JOHANNES QUAAS, WILLEM KROESE, BASTIAAN VAN DIEDENHOVEN, EDWARD GRYSPEERDT, CHRISTOPH BÖHM, KAROLINE BLOCK, OTTO HASEKAMP • 18 FEB 2026

Using optimal proxies for cloud condensation nuclei reduces the uncertainty in aerosol-cloud forcing estimates by one-third.

ABSTRACT

PHYSICAL AND MATERIALS SCIENCES

Direct cyanation of aromatic rings using dinitrogen and methane promoted by nonthermal plasma

BY LEI YU, SHIXIONG ZHANG, LIANG LIU, DI LI, YONGLI CAI, CHENXIN WU, LEI HUA, HAIYANG LI, DEHUI DENG, PING CHEN, [...] JUNNIAN WEI +2 authors • 20 FEB 2026

A nonthermal plasma method enables direct synthesis of aromatic nitriles from nitrogen and methane.

ABSTRACT

Electroluminescent perovskite QD–based neural networks for energy-efficient and accelerate multitasking learning

BY YOUNG RAN PARK, GUNUK WANG • 20 FEB 2026

Dual-output perovskite synapses enable energy-efficient multitasking learning through parallel electrical and optical signals.

ABSTRACT

Precise modulation of MOF pore structures via functional group dimensions and spatial configuration for membrane separation

BY WEIJIAN SUN, KAICHENG YANG, YIFAN ZHAO, LIPING SUN, QINGCHI XU, JIAN WENG, JUN XU • 20 FEB 2026

MOF membranes can achieve pore structure and aperture regulation via functional group-light modulation for alkane separation.

ABSTRACT

Efficient AgInGaS-based QLEDs and full-color displays via uniform silver vacancy distribution

BY TIANCHEN LI, YUCHEN YUE, HUI LI, NING GUO, FENGMIAN LI, HANFEI GAO, LEI JIANG, YUCHEN WU • 18 FEB 2026

Multistep temperature control enables uniform VAg distribution in AIGS QDs for efficient QLEDs and full-color displays.

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Inertia-driven amphibious robot with asymmetric microundulatory fin arrays

BY LINGQI TANG, YONGZUN YANG, BING LI, BINGFU ZHANG, QIGUANG HE, HONGLIANG REN, YAO LI • 18 FEB 2026

A compact robot uses an internal inertial actuator to crawl, jump, and perform steerable swimming.

ABSTRACT

Repurposing Si CMOS nonidealities for stochastic and analog image processing

BY BEEN KWAK, RYUN-HAN KOO, CHANGHYEON HAN, YUNHO SHIN, JOONHYEOK CHOI, DONGBIN KIM, JONGWOO LEE, JISEONG IM, YOUNGCHAN CHO, JONG-HO LEE, [...] DAEWOONG KWON +1 authors • 20 FEB 2026

A standard CMOS transistor harnesses intrinsic noise and nonlinearity to perform stochastic and analog image processing.

ABSTRACT

Electrochemical conversion of oxalic acid to glycolic acid via oxygen vacancy–mediated tandem catalysis

BY MIN LI, FANTAO KONG, HAO ZHUO, WENSHU LUO, XIANGZHI CUI, JIANLIN SHI • 20 FEB 2026

A dual-site tandem catalytic mechanism promotes the electrocatalytic hydrogenation of oxalic acid to glycolic acid.

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Metal-organic framework/graphene nanoribbon/polyimide mixed-matrix membranes for high-temperature H_2/N_2 separation

BY SOON HYEONG SO, SUNWOO KIM, MINSU KIM, DONGHYUN KIM, TAEHWAN KIM, KIWON EUM, YUN HO KIM, JUNGHWAN KIM, DAE WOO KIM • 18 FEB 2026

A thermally stable polymer matrix enables high-temperature membrane separation with industrial relevance.

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"Direct" measurement of delocalized molecular excitonic wave functions through excitonic and vibronic photon imaging

BY YANG LUO, GONG CHEN, LI ZHANG, YUN-JIE YU, QIU-SHI MENG, FAN-FANG KONG, XIAO-JUN TIAN, YAO ZHANG, YANG ZHANG, ZHEN-CHAO DONG • 18 FEB 2026

Submolecular photon imaging enables real-space reconstruction of amplitude and phase of delocalized excitonic states.

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Boosting capacitive energy storage in relaxor ferroelectrics through polymorphic phase engineering

BY YANG ZHANG, HUAN LIANG, YAJING LIU, DONG LI, SHUAI DONG, JING WANG, WEIWEI LI, CE-WEN NAN • 20 FEB 2026

Polymorphic phase engineering in relaxor ferroelectrics offers clear benefits for dielectric energy storage.

ABSTRACT

Morphology-adaptive Au-Ag nanowire elastronics for integrated FlexoSERS and bioelectrical sensing

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A vertically aligned Au-Ag nanowire array as a morphology-adaptive, dual-functional conformal sensing platform.

ABSTRACT

Conformation-programmed DNA computing

BY QIAN LING, BOZHAO LI, YUHUA FENG, JING YANG, SHI'AN WANG, SUPING LI, CHENG ZHANG • 18 FEB 2026

This DNA computing model integrates sequence programmability with allostery, establishing a conformation-based computing paradigm.

ABSTRACT

BIOMEDICINE AND LIFE SCIENCES

Hemizygous loss of helicases promotes genomic instability and cancer development

BY KAROLIN VOSSGRÖNE, FRANCESCO FAVERO, KRUSHANKA KASHYAP, FRANCISCO G. RODRÍGUEZ-GONZÁLEZ, ANDRÉ V. OLSEN, XIN LI, BALCA R. MARDIN, JOACHIM WEISCHENFELDT, CLAUS S. SØRENSEN • 20 FEB 2026

Losing one copy of helicase genes reduces genome protection, leading to DNA damage and higher risk of cancer development.

ABSTRACT

Single-cell epigenetic profiling reveals a tumor-intrinsic interferon response program in ccRCC tied to poor prognosis and *BAP1* loss

BY SABRINA Y. CAMP, MENG XIAO HE, MICHAEL S. CUOCO, AMANDA E. GARZA, SHERIN XIRENAYI, ZIAD BAKOUNY, EDDY SAAD, JAD EL MASRI, ERICA PIMENTA, KEVIN MELI, [...] ELIEZER M. VAN ALLEN +18 authors • 20 FEB 2026

Single-cell chromatin profiling reveals how *BAP1* loss drives interferon signaling and aggressiveness in ccRCC.

ABSTRACT

Design and preclinical feasibility of a pediatric heart valve stent that spontaneously adapts to growth via a spring mechanism

BY GISELLE VENTURA, MASAKI KAJIMOTO, MOSSAB SAEED, J. SCOTT MALLOY, IAN MCGINTY, LYUBOMYR BOHUTA, KEVIN A. CHARETTE, KYLE BILODEAU, GIANNA DAFFLISIO, SHANNEN B. KIZILSKI, [...] CORIN WILLIAMS +8 authors • 18 FEB 2026

A pediatric heart valve stent that spontaneously "grows" could reduce surgeries and invasive procedures for children.

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Copy number increases of the γ-secretase genes on 1q were identified as candidate oncogenes in pancreatic neoplasms.

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Disrupted energy metabolism is associated with retinal ganglion cell degeneration in autosomal dominant optic atrophy

BY EUGENE YU-CHUAN KANG, YUN-JU TSENG, WEI-HAO PENG, HUI-CHUAN HUNG, PEI-HSUAN LIN, KATRINA P. MONTALES, EMMET SHERMAN, JOHN PEREGRIN, ETHAN HUNGHSI WANG, CHUNYA KANG, [...] NAN-KAI WANG +14 authors • 18 FEB 2026

Opa1 variant disrupted mitochondrial energy metabolism and redox homeostasis, triggering RGC degeneration in ADOA.

ABSTRACT

Intratumoral *Parvimonas micra* promotes esophageal squamous cell carcinoma via *p*-cresol–induced T_{reg} differentiation

BY GUOYU CHENG, XUAN JIANG, LINGXUAN ZHU, XINJIE CHEN, RUCHENG LIU, LIANG ZHU, XIAO HU, SHAOSEN ZHANG, WEN TAN, DONGXIN LIN, [...] MINGKUN LI +2 authors 20 FEB 2026

Intratumoral *Parvimonas micra* promotes esophageal cancer via *p*-cresol–mediated T_{reg} differentiation and immunosuppression.

ABSTRACT

3D reconstruction of human liver tissue at cellular resolution

BY WESLEY B. FABYAN, CHELSEA L. FORTIN, DORICE L. GOUNE, HEIDI L. KENERSON, SUSANA P. SIMMONDS BOHORQUEZ, JONATHAN T. C. LIU, MATTHEW M. YEH, ROTONYA M. CARR, RAYMOND S. W. YEUNG, KELLY R. STEVENS • 18 FEB 2026

3D human liver reconstructions reveal architectural hallmarks of cirrhosis and offer structural insights for tissue engineering.

ABSTRACT

Tuning of the RBR1-E2F/DP transcriptional module by the F-box protein FBL17

BY JULIETTE ESPANET, XIAONING HE, TING PAN, NAOMIE GENTRIC, THOMAS POTUSCHAK, BÉNÉDICTE DESVOYES, PHILIPPE HAMMANN, JOHANA CHICHER, RIM BRIK, ESTHER LECHNER, [...] PASCAL GENSCHIK +8 authors • 18 FEB 2026

FBL17 regulates the RBR1–E2F/DP transcriptional module to prevent aberrant activation of the DNA damage response in *Arabidopsis*.

ABSTRACT

Structures of the 26*S* proteasome in complex with the Hsp70 co-chaperone Bag1 reveal a mechanism for direct substrate transfer

BY MOISÉS MAESTRO-LÓPEZ, TAT CHEUNG CHENG, JIMENA MUNTANER, MARGARITA MENÉNDEZ, MELISSA ALONSO, ANDREAS SCHWEITZER, MASATO ISHIZAKA, ROBERT J. TOMKO JR., JORGE CUÉLLAR, JOSÉ MARÍA VALPUESTA, ERI SAKATA • 20 FEB 2026

Bag1 connects the chaperone and proteasome systems by deforming the ATPase ring to promote direct degradation of Hsp70 client.

ABSTRACT

Complement C3 recognition by C3 convertases

BY CHANGHAO JIA, XIAOKE YANG, MING-HUI ZHAO, YING TAN, JUNYU XIAO • 20 FEB 2026

Cryo-EM structures reveal how immune complement pathways activate, advancing mechanistic understandings and therapeutic insights.

ABSTRACT

The vault particle is enclosed by a *C*13-symmetric cap with a positively charged exterior

BY HUAN LI, FRANCESCA VALLESE, OLIVER B. CLARKE • 18 FEB 2026

Cryo-EM analysis of the cap of the vault particle reveals an unexpected *C*13-symmetric architecture.

ABSTRACT

Engineering controlled-release steroid therapeutics: fabrication and molecular design of self-assembled microparticles

BY OLUWASEUN D. AKANBI, MICHAEL L. FELDER, DANIEL KUPOR, JIACHEN FENG, LUANA JANAÍNA DE CAMPOS, LISA J. BAIN, CRYSTAL SANCHEZ, HANIEH SAFARI, THI VO, MARTIN CONDA-SHERIDAN, OMOLOLA ENIOLA-ADEFESO • 20 FEB 2026

Steroid microparticle self-assembly is investigated through modifications in fabrication process parameters and steroid chemistry.

ABSTRACT

12R-HETE acts as an endogenous ligand for Nur77 in the intestines and regulates NKp46$^+$ ILC3 development

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A gut lipid activates Nur77 to guide early-life ILC3 development and protect newborns from *S.* Typhimurium infection.

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Aneuploidy of chromosome 8 promotes the mesenchymal lineage during cell fate transitions

BY CAI LIANG, GUANCHEN LI, QIUQIN ZHANG, XINLEI WANG, YU LIU, WENJUAN YIN, TING TAO, JINHU WANG, HAISHAN GAO, SHUTAO QI, HONGTAO YU • 18 FEB 2026

A specific chromosome number change frequently observed in childhood sarcomas confers fitness advantage to mesenchymal stem cells.

ABSTRACT

KRAS^{G12V}/HLA-A*02:01–targeted chimeric antigen receptor T cells exhibit potent preclinical activity against solid tumors

BY HUIMIN SHAO, FEI XU, JIANGYUE XU, LINGJIE ZHOU, YAO WU, LIANJUN HE, XUEYI QIAN, WEIJIE HE, NANLIN JIAO, YABIN XIA, [...] ZHENYU XU +7 authors • 20 FEB 2026

CAR T cells targeting KRAS^{G12V} safely eliminate solid tumors in preclinical models, offering a promising neoantigen therapy.

ABSTRACT

cPLA$_2$α targeting to exosomes connects nuclear deformation to LTB$_4$-signaling during neutrophil chemotaxis

BY SUBHASH B. ARYA, FATIMA JORDAN-JAVED, KRISTEN LOESEL, YEHYUN CHOI, SAMUEL P. COLLIE, LAUREN E. HEIN, BRENDON M. BAKER, EUISIK YOON, CAROLE A. PARENT • 20 FEB 2026

Nuclear squeezing triggers lipid signals that help neutrophils stay on course through tight spaces.

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RAD51C-XRCC3 complex regulates FANCM-mediated R-loop resolution to safeguard genome integrity

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RAD51 paralog CX3 complex distinctly participates in R-loop resolution and fork maintenance to safeguard the replicating genomes.

ABSTRACT

miRNA gene mutations commonly disrupt the proper functioning of miRNA genes

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Most mutations located in miRNA genes seriously affect their proper functioning.

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The mechanical properties of *Arabidopsis thaliana* roots adapt dynamically during development and to stress

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Brillouin microscopy reveals in vivo dynamics of mechanical properties during plant development and response to stress.

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CH•••S hydrogen bonds drive molecular recognition of ergothioneine by the microbial transporter

BY KATHERINE A. LEGG, GIOVANNI GONZALEZ-GUTIERREZ, KATHERINE A. EDMONDS, PHILIP G. SHUSHKOV, DAVID P. GIEDROC • 20 FEB 2026

Alkyl CH•••S hydrogen bonding interactions enable selective transport of the antioxidant ergothioneine into bacterial cells.

ABSTRACT

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BY DHRUVA NAIR, BRIAN R. CRANE • 20 FEB 2026

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R-loop processing via REXO4-RNaseH1–mediated endo- and exo-cleavage coupling mode prevents genome instability and antitumor immunity

BY HAN YANG, CHEN NIE, YINGYU QIN, XINXIN LIANG, YIFAN CHEN, ZENAN ZHOU, TAO ZHOU, TAO ZHANG, YILIN CUI, MING PANG, [...] WEIBIN WANG +1 authors • 18 FEB 2026

Disrupting REXO4-RNaseH1–mediated R-loop processing triggers genome instability and heightens antitumor immune responses.

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Transmembrane proteins mediate basal complex assembly and individual daughter cell formation in malaria parasites

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ABSTRACT

The actin cytoskeleton is required to maintain plant cell division orientation against cellular geometry

BY CAMILA GOLDY, SAMANTHA MOULIN, YUTARO SHIMIZU, GUILLAUME CERUTTI, VINCENT BAYLE, MAGALI GRISON, YVON JAILLAIS, DAVID BOUCHEZ, YOHANN BOUTTÉ, MARTINE PASTUGLIA, [...] MARIE-CÉCILE CAILLAUD +1 authors • 18 FEB 2026

Actin guides plant cell division, shaping tissues in ways that defy geometric constraints.

ABSTRACT

Taurine-driven chemotaxis and metamorphosis in ascidian tadpole larvae

BY LI-KUN YANG, QISHU QIN, JIN ZHANG, ZIYU ZHANG, HAIYAN YU, CHENGTIAN ZHAO, BO DONG • 20 FEB 2026

Targeting taurine chemosensation in marine animals provides an antifouling strategy.

ABSTRACT

Activation of the YAP1/pSTAT3/NRP1 axis in peritendinous sensory nerves promotes tendon healing

BY JIAYI WANG, FAN WANG, JINGWEN LIU, YAO XIAO, ZHAOYANG LI, XIAONAN LIU, PEILIN ZHANG, FEI WANG, WENGUO CUI, SHEN LIU • 18 FEB 2026

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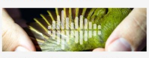

26 FEB 2026 | BY SARAH CRESPI, MEAGAN CANTWELL, WARREN CORNWALL

Tropical birds' 'silent spring,' and mapping people's brains during surgery

00:00 | 29:48

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