Patient Wellness First

Issue:15 September 2025

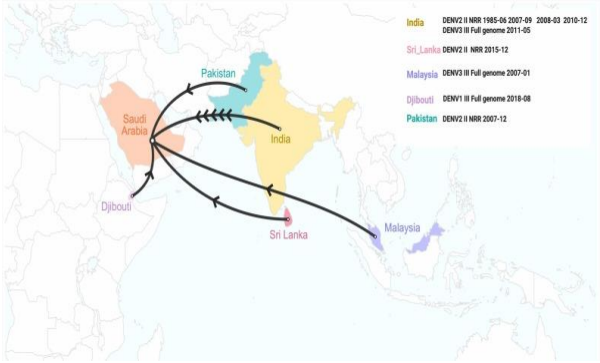
BioSciTech biweekly NEWS

NEWS & COMMENTARIES

Mouning Professor David Baltimore. Prof. David Baltimore passed away on September 6, 2025. David Baltimore was one of the most influential scientists in modern biology, with an extraordinary body of work. His discovery of reverse transcription opened new paths in molecular virology and medicine—work recognized with the 1975 Nobel Prize in Physiology or Medicine. The Baltimore classification of viruses shaped the conceptual framework of virology for decades, while the discovery of NF-κB from his laboratory transformed our understanding of inflammation, immunity, and cancer. His reflections on a life in science —captured in his essay "Sixty Years of Discovery" in Annual Reviews of Immunology (see link below)— remain a compass for how fundamental research can transform medical practice. The scientific community has lost a true pioneer.
https://lnkd.in/dR4bexEF

Servier acquires potential treatment for Fragile X syndrome, the most common genetic cause of autism spectrum disorder. Servier acquires KER-0193, a potential treatment for Fragile X syndrome, developed by Kaerus Bioscience, a Medicxi company
KER-0193, a novel, orally bioavailable small molecule, was granted Orphan Drug Designation and Rare Pediatric Drug Designation by U.S. FDA
https://servier.com/en/newsroom/acquisition-fragile-x-syndrome-autism-spectrum-disorder/

SELECTED PUBLICATIONS



Molecular Evolutionary Insights into the Repeated Introductions and Cryptic Transmission of Dengue Virus in Saudi Arabia
Muhammad Bashir Bello et al., 2025
DOI: 10.1016/j.jinf.2025.106608 External Link
The study analyzed the genetic diversity, evolutionary dynamics, and phylogeography of DENV strains in Saudi Arabia. It found that DENV-2 emerged as the predominant serotype, with five distinct introductions from India, Sri Lanka, and Pakistan. The findings highlight Saudi Arabia's role as a regional hub for DENV transmission, driven by mass gatherings and labor migration. Strengthening genomic surveillance, vector control, and regional data sharing are crucial for improving outbreak response and preparedness.

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The Lancet Countdown on health and plastics

Landrigan et al., 2025

DOI: 10.1016/S0140-6736(25)01447-3

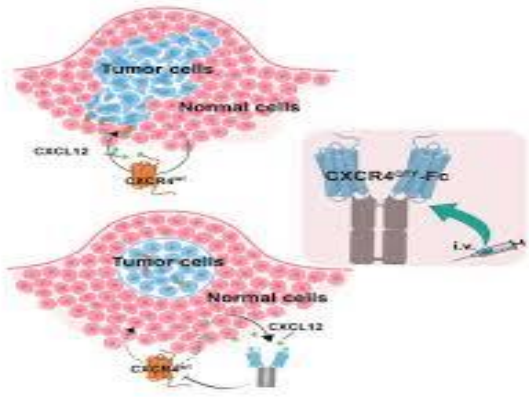
Plastics pose a significant threat to human and planetary health, causing disease, death, and economic losses exceeding US$1.5 trillion annually. The crisis is driven by accelerating plastic production, with 8000 Mt of waste polluting the planet. The Global Plastics Treaty, a legally binding instrument, is being developed to address plastic pollution. The Lancet Countdown on health and plastics will monitor progress towards reducing plastic exposures and mitigating plastics' harms.

Adaptive radiation and social evolution of the ants

Joel Vizueta et al., 2025

DOI: 10.1016/j.cell.2025.05.030

Ants evolved over 150 million years ago, forming complex colonies. A study analyzed 163 ant genomes and found significant changes related to their evolution. Key genes linked to metabolism and caste differences were identified. Important gene families expanded in early ants, with some undergoing positive selection. The study highlights how queen-worker differences and social traits show patterns of selection in gene networks. It also confirms new genetic factors that control caste development in ants.



Inhibiting cancer metastasis with water-solubilized membrane receptor CXCR4QTY-Fc as a molecular trap

Sun et al., 2025

DOI: 10.1016/j.chembiol.2025.07.006

This study introduces a new design strategy for creating water-soluble proteins that target multiple receptors, specifically CXCR4QTY-Fc, to stop cancer spread. This molecule outperforms an existing drug, AMD3100, in blocking cell migration in various cancers. It also enhances treatment outcomes and has potential applications in other cancer therapies.

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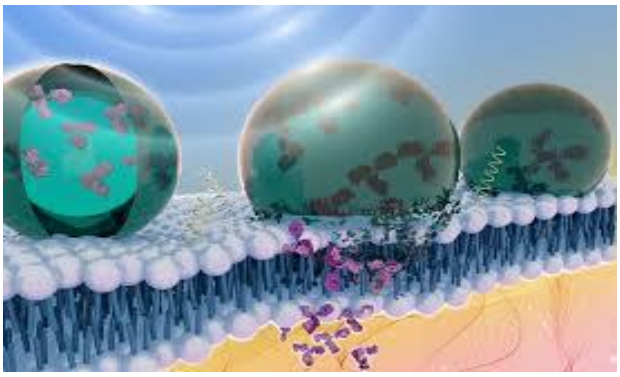
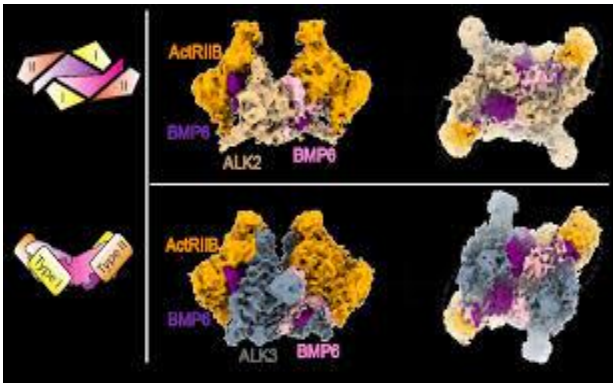


Precise antibody delivery to the brain via nanobubble-actuated focused ultrasound alleviates depression

Wenjing Li et al., 2025

DOI :10.1073/pnas.2421800122

Here, this study introduces a nanobubble (NB)-actuated focused ultrasound (FUS) strategy for highly precise blood–brain barrier (BBB) opening and targeted monoclonal autoantibody delivery. This study precisely transported antibodies to the lateral habenula in depression-like mice, effectively achieving sustained alleviation of depressive symptoms. This noninvasive method offers the longest-lasting and most targeted antibody delivery among existing therapies, presenting a promising alternative to conventional antidepressants.

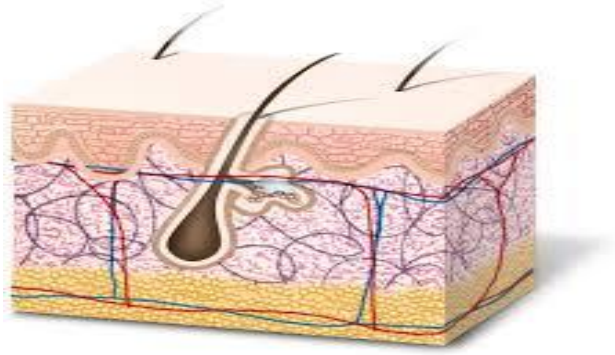


CryoEM structure of ALK2:BMP6 reveals distinct mechanism that allow ALK2 to interact with both BMP and activin ligands

Goebe et al., 2025

DOI :10.1073/pnas.2502788122

Activin receptor-like kinase-2 (ALK2) interacts with Bone Morphogenetic Proteins (BMPs) and activins, playing roles in bone modeling and regulating signaling. The study reveals ALK2 binds to BMP6 using a wrist-helix stabilized by glycosylation, and interacts with Activin A through a single interaction.



Skin metatranscriptomics reveals a landscape of variation in microbial activity and gene expression across the human body

Minghao Chia et al., 2025

https://doi.org/10.1038/s41587-025-02797-4

The study developed a robust skin metatranscriptomics workflow that offers high technical reproducibility, uniform coverage, and strong enrichment of microbial mRNAs. It identified a notable divergence between transcriptomic and genomic abundances, with Staphylococcus species and Malassezia species contributing significantly. The workflow also identified diverse antimicrobial genes transcribed by skin commensals in situ, and over 20 genes mediating interactions between microbes.

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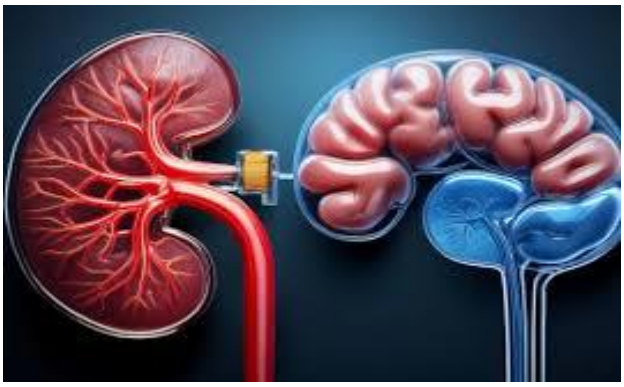

Propagation of pathologic α-synuclein from kidney to brain may contribute to Parkinson's disease

Xin Yuan et al., 2025

DOI: 10.1038/s41593-024-01866-2

Lewy body diseases (LBDs), including Parkinson's disease, are caused by α-synuclein aggregation in peripheral organs. Chronic renal failure increases PD incidence, but the underlying mechanisms remain unknown. In male mice, kidney failure reduces α-Syn deposition, leading to brain spread. Renal denervation blocks pathogenic α-Syn propagation, but deletion in blood cells alleviates pathology. compromised renal function may contribute to LBD onset.

Focal Adhesion Kinase inhibition induces membrane accumulation of aquaporin-2 in renal epithelial cells by actin depolymerization and endocytosis inhibition

Asma Tchakal-Mesbahi, et al., 2025

DOI:10.1152/ajprenal.00091.2025

Vasopressin (VP) affects the water channel aquaporin-2 (AQP2) and is controlled by the actin cytoskeleton in kidney cells. Researchers investigated how focal adhesion kinase (FAK) influences AQP2 movement. They found that using the FAK inhibitor VS-4718 led to an increase of AQP2 on the cell membrane and decreased its uptake through the clathrin-mediated pathway. This was associated with lower RhoA activation and less actin fiber breakdown. Interestingly, this effect was also seen in cells with a specific AQP2 mutation. The findings suggest that targeting FAK could offer new treatment options for water balance issues.

Microbiota-driven antitumour immunity mediated by dendritic cell migration

Nina Yi-Tzu Lin et al., 2025

https://doi.org/10.1038/s41586-025-09249-8

Gut microbiota affect the effectiveness of immune checkpoint blockade treatments. A new strain of bacteria, Hominenteromicrobium YB328, found in patients who responded to PD-1 blockade, enhanced antitumour responses in mice. YB328 activated CD8+ T cells by stimulating specific dendritic cells, which then moved to the tumor site. Mice treated with faecal transplants from non-responders plus YB328 showed better responses to PD-1 blockade. Patients with higher YB328 levels had more dendritic cells in tumors and better responses to this therapy across different cancers.

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SPECIAL EVENT

KSA Biotech is Flourishing: KAIMRC-JP Morgan Innovation Forum: The Forum will bring together innovators, investors and industry leaders to explore the latest advancements and trends shaping the future of healthcare in Saudi Arabia.

Join us on 1-2 October 2025

Location: King Saud bin Abdulaziz University for Health Sciences Convention Center, Riyadh.

https://ksau-hs.edu.sa/English/MediaCenter/Events/Pages/Life-Sciences-Innovation-Forum-2025.aspx

RECOMMENDED EVENTS & JOB CORNER

On a global scale, gender inequalities in health are still profound. For example, according to the World Health Organization (WHO): Maternal mortality remains high, with 295,000 women dying every year from complications related to pregnancy and childbirth, mainly in developing countries.
Cardiovascular disease is the leading cause of death among women, accounting for around 35% of all female deaths worldwide. **https://mcaevents.eventsair.com/womens-health-conference/registration/Site/Register**

Disruptive Technologies for Drugging the Undruggable

SciLifeLab Science Summit 2025
This full-day symposium will bring together leading scientists, industry experts, and innovators to discuss the breakthroughs and challenges in addressing previously inaccessible drug targets. Join us at Aula Medica, Karolinska Institutet, for a packed program featuring high-impact international presentations, panel discussions, and networking opportunities.
https://www.scilifelab.se/event/drugging-the-undruggable-scilifelab-science-summit-2025/

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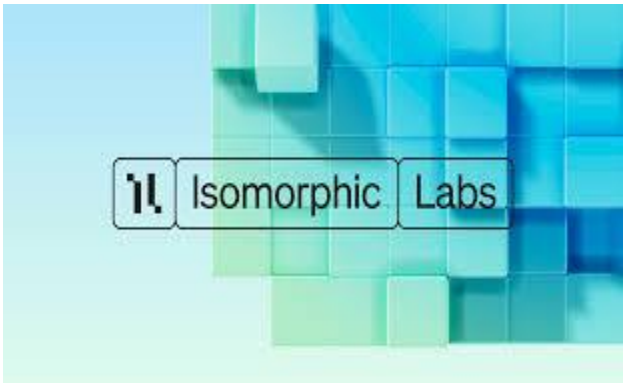
Postdoc in Signalling Heterogeneity in Space and Time - DTU Bioengineering

If you have extended experience in imaging and imaging analysis from two- and three-dimension (3D) cell culture and your aspiration is to be at the forefront of system biology and single-cell analysis of cell signalling, this three-years postdoc position at DTU Bioengineering will fulfil your scientific and personal development in an international, multi-disciplinary, and curiosity-driven research team.
https://efzu.fa.em2.oraclecloud.com/hcmUI/CandidateExperience/en/sites/CX_2001/job/5531/?utm_medium=jobshare&utm_source=External+Job+Share

IPST Postdoctoral Fellowship in Artificial Chemical Intelligence

The Institute for Physical Science & Technology (IPST) invites applications for postdoctoral fellowships in Artificial Chemical Intelligence — research at the interface of {Proteins ∪ RNA ∪ Chemistry} ∩ AI ∩ (Statistical Mechanics). Up to 2 fellows will be hired to work with the Tiwary Lab and positions will stay open until filled.

https://sites.google.com/site/pratyushtiwary/ipst-postdoctoral-fellowship-in-artificial-chemical-intelligence



Isomorphic Labs: Senior Scientist / Research Scientist (In-vitro / Cellular Pharmacology), London

The candidate will design efficient and comprehensive biological screening cascades for a variety of internal and partnered drug design programs.

Work with CROs to design decision-making experiments, and deliver the highest quality biological data to inform the path to the clinic. Work cross-functionally with our Drug Design and Technology teams.

https://job-boards.greenhouse.io/isomorphiclabs/jobs/5631827004

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Let us benefit other scientists.

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