Patient Wellness First

BioSciTech biweekly NEWS

Issue: 1 April 2025

NEWS & COMMENTARIES

Prof. Miriam Merad received Sjöberg Laureate discovered new targets for cancer therapies in the immune system

Miriam Merad, Mount Sinai, USA, has studied how cells in the innate immune system affect the body's ability to fight tumours. Her discoveries have hugely contributed to making these cells a promising target for the development of new cancer therapies. She is now awarded the Sjöberg Prize, worth one million US dollars.

https://www.kva.se/en/news/sjoberg-prize-2025/

Director of NIH's National Human Genome Research Institute departs: Stat

By Gabrielle Masson Mar 18, 2025 3:45pm

After serving as the director of the National Human Genome Research Institute (NHGRI) for more than 15 years, Eric Green, M.D., Ph.D., has left his role.

Green, the leader of one of the National Institutes of Health's (NIH's) 27 institutes, leaves amid mass federal layoffs and restructuring under President Donald Trump's administration. His five-year term as NHGRI head was up for renewal, according to Stat. The NIH had sent paperwork to the Department for Health and Human Services (HHS) to renew Green's term, according to Stat, though the papers were obviously not cleared.

https://www.fiercebiotech.com/biotech/director-nihs-national-human-genome-research-institute-steps-down

How a PhD student's lab size affects their chance of future academic success

Trainees in big research groups tend to go on to greater academic success than their small-group counterparts — but are more likely to quit academia altogether.

https://www.nature.com/articles/d41586-025-00644-9

Pfizer terminates an early-stage STING agonist trial

Pfizer was studying PF-07820435, an orally available agonist of the STING protein, for solid tumors was terminated.

https://www.biospace.com/business/pfizers-pipeline-pruning-ends-early-stage-sting-trial

Patient Wellness First

BioSciTech biweekly NEWS

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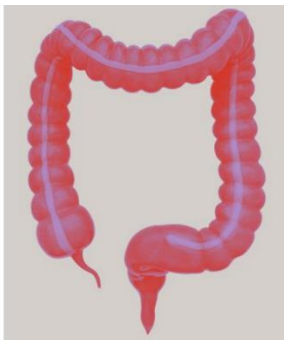
Alcohol and cancer risk: what you need to know

By Helen Pearson

Experts weigh in on the risks of moderate drinking — and how people should assess them. Early this year, the US surgeon general issued a bombshell report. Before his term ended in January, Vivek Murthy warned that alcohol increases the risk of at least seven types of cancer and called for alcoholic drinks to carry cancer warning labels as cigarette packs do. The report1 triggered a flurry of headlines about a risk that many people ignore. **https://www.nature.com/articles/d41586-025-00729-5**



Johnson & Johnson (NYSE: JNJ) today announced positive topline results from ANTHEM-UC, a Phase 2b study of icotrokinra (JNJ-2113), the first investigational targeted oral peptide that selectively blocks the IL-23 receptor, in adults with moderately to severely active ulcerative colitis (UC). The study met its primary endpoint of clinical response[a] in all icotrokinra dose groups evaluated and demonstrated clinically meaningful differences versus placebo in key secondary endpoints of clinical remission[b], symptomatic remission and endoscopic improvement at Week 12. **https://innovativemedicine.jnj.com/our-innovation/focus-areas/immunology/icotrokinra-meets-primary-endpoint-of-clinical-response-in-ulcerative-colitis-study-and-shows-potential-to-transform-the-treatment-paradigm-for-patients?sf217243776=1**

FDA Approves Neurotech's Cell Therapy Rare Eye Disease

The U.S. Food and Drug Administration approved Neurotech Pharmaceuticals cell therapy for the treatment of the degenerative retinal disease macular telangiectasia type 2. Macular telangiectasia type 2 (MacTel), or idiopathic macular telangiectasia type 2, is a bilateral, neurodegenerative disease in adults with characteristic localized retinal degeneration. It causes the gradual loss of cells in the retina, resulting in vision loss and secondary alterations of the retinal vasculature, the network of blood vessels that supplies oxygen and nutrients to the retina.
https://globalgenes.org/raredaily/fda-approves-neurotechs-cell-therapy-rare-eye-disease/

Patient Wellness First

BioSciTech biweekly NEWS

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SELECTED PUBLICATIONS

Genomic diversity of non-typhoidal Salmonella in gastroenteritis patients in Norfolk, UK

Steven J Rudder, Bilal Djeghout, et al., 2025

DOI:10.1101/2025.03.06.641842

This study examines the genomic diversity of Salmonella from stool samples of eight gastroenteritis patients, analysing up to 20 isolates per sample (156 total). While serovars and sequence types remained consistent within individuals, SNP analysis revealed microevolution in S. Java ST149 and ST43. Phylogenetic analysis identified distinct mutations, while hybrid assemblies confirmed uniform genome structure (GS1.0). Antimicrobial resistance profiling showed multidrug efflux genes in all isolates, with S. Typhimurium from Patient 4 carrying additional resistance genes linked to a genomic deletion. These findings highlight within-host Salmonella diversity and the limitations of single-colony sequencing.

Surveillance and countermeasures for ACE2-using MERS-related coronaviruses

Shibo Jiang, Fan Wu, 2025

DOI:1016/j.cell.2025.02.004

Three studies in Cell reveal that certain MERS-related coronaviruses (MERSr-CoVs) use ACE2, rather than DPP4, for cell entry. These viruses have the potential for zoonotic transmission with high transmissibility, similar to SARS-CoV-2, emphasising the need for global surveillance and countermeasures.

Decoding host-microbe interactions using human organoids

Lucas A Meirelles, Alexandre Persat, 2025

https://doi.org/10.1038/s44318-025-00387-3

As antimicrobial resistance rises, understanding pathogen-host interactions is critical. This study integrates human organoids with high-resolution imaging and sequencing to model infections in realistic conditions. This approach could advance fundamental and translational research, paving the way for new therapies.

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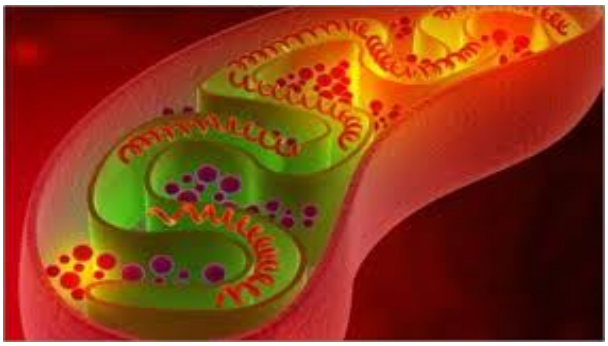
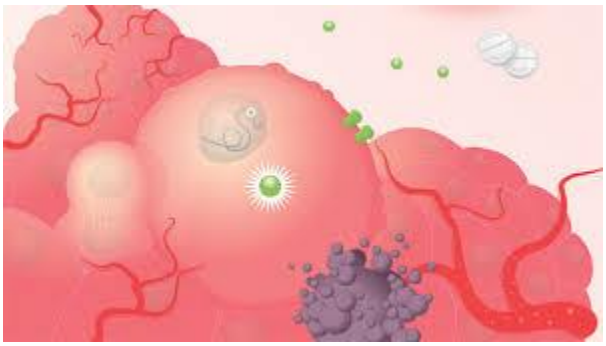


Mitochondrial DNA removal is crucial for sperm development

Chen et al., 2025

https://doi.org/10.1038/s44318-025-00377-5

Mitochondrial DNA (mtDNA) elimination during spermatogenesis ensures uniparental inheritance, but its physiological role was unclear. This study identifies Poldip2 as a key mitochondrial exonuclease required for mtDNA clearance in Drosophila sperm. Loss of Poldip2 leads to defective sperm development and sterility, demonstrating the necessity of mtDNA removal for sperm function.

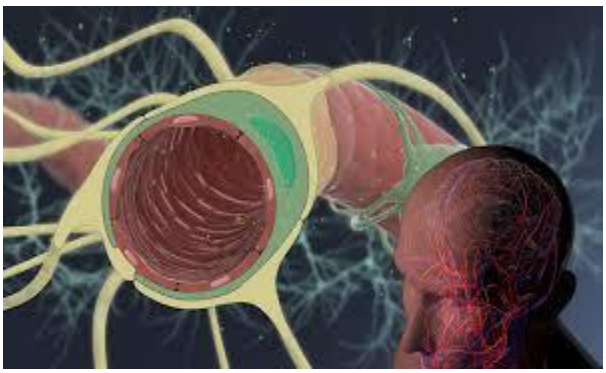


CMTM4 modulates tumour inflammation and drug response

Xu et al., 2025

https://doi.org/10.1038/s44318-024-00330-y

CMTM4 is highly expressed in multiple cancers and regulates tumour growth by modulating inflammatory and signalling pathways. Loss of CMTM4 reduces NF-κB, mTOR, and PI3K/Akt activation, enhancing sensitivity to EGFR inhibitors and immunotherapy. Targeting CMTM4 could improve cancer treatment outcomes.



Engineered probiotics for brain-targeted drug delivery

Haosheng Shen et al., 2025

DOI:10.1016/j.cell.2025.01.017

Lactobacillus plantarum WCFS1 was engineered for intranasal drug delivery through the olfactory epithelium (OE) into the brain. In an obesity model, the probiotic reduced appetite, weight gain, and improved metabolism. This study highlights its potential as a vehicle for brain-targeted therapies.

Dual mRNA nanoparticles for pancreatic cancer therapy

Qianru Zhu et al., 2025

DOI:10.1073/pnas.2418306122

A novel dual mRNA nanoparticle strategy enhances pancreatic cancer treatment by locally producing anti-PD-1 antibodies at the tumour site, improving neoantigen vaccine efficacy while reducing systemic toxicity. This approach could improve immunotherapy outcomes and be combined with other cancer drugs like β-elemene.

By Dr. M.Boudjelal (KAIMRC), Dr. M. Belhocine (AGU), Dr. F. Amokrane Nait Mohamed (Harvard), Dr. Bilal Djeghout (Quadram Institute)

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Patient Wellness First

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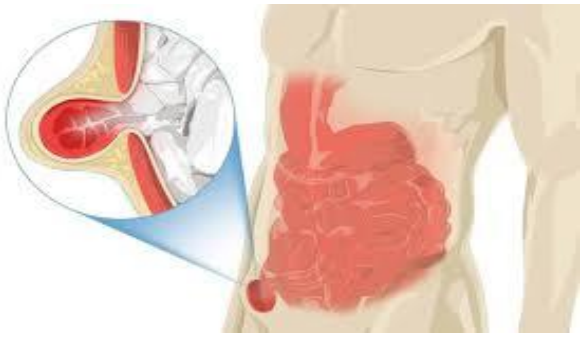
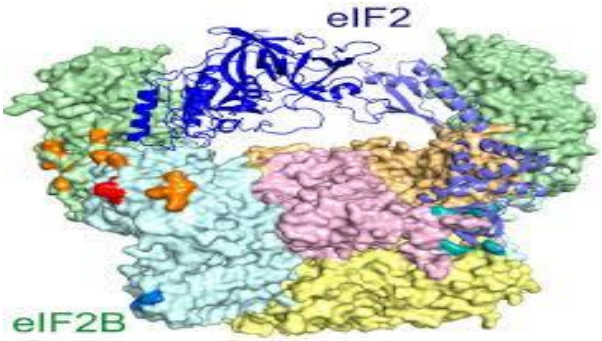


Estrogen receptor-α ablation reverses muscle fibrosis and inguinal hernias

Tanvi Potluri et al., 2025

https://doi.org/10.1172/JCI179137

Fibrosis of the lower abdominal muscle (LAM) contributes to muscle weakening and inguinal hernia formation, affecting 50% of men by age 75. Using a humanized mouse model, researchers identified estrogen receptor-α (ESR1) as a key driver of LAM fibrosis and hernia development. Ablating ESR1 in fibroblasts or inhibiting it with fulvestrant prevented fibrosis, reversed hernias, and restored muscle structure. Multiomics analysis confirmed an estrogen/ESR1-driven profibrotic gene signature, suggesting potential non-surgical treatments for inguinal hernias.

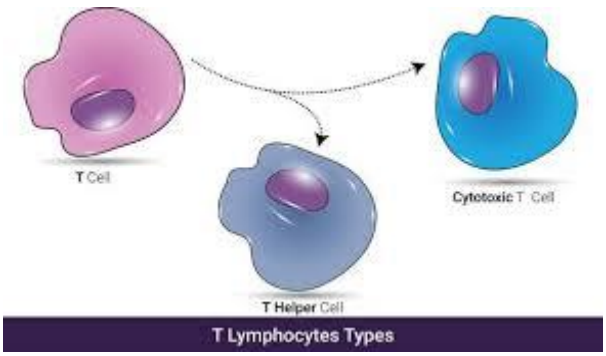


Maintenance of p-eIF2α levels by the eIF2B complex is vital for colorectal cancer

Ivana Paskov Škapik et al., 2025

https://doi.org/10.1038/s44318-025-00381-9

Colorectal cancer (CRC) with APC loss relies on an oncogenic translation program regulated by phosphorylated eIF2α (p-eIF2α). Despite increased protein synthesis, CRC exhibits elevated p-eIF2α, which is crucial for translation balance. The decameric eIF2B complex, especially its α and δ subunits, senses p-eIF2α and is vital for CRC cell survival. Depleting eIF2Bα impairs CRC growth in organoid models, highlighting eIF2Bα as a potential therapeutic target for APC-deficient CRC.



IL-27 elicits a cytotoxic CD8+ T cell program to enforce tumour control

Béatrice Bréart et al., 2025

https://doi.org/10.1038/s41586-024-08510-w

IL-27 enhances cytotoxic CD8+ T cell (CTL) function in tumors, promoting their persistence and anti-tumor activity. In mice, IL-27 directly supports tumor-specific CTLs and synergizes with PD-L1 blockade to induce tumor regression. High IL-27 expression in cancer patients correlates with better responses to anti-PD-1/PD-L1 therapy. IL-27 receptor agonism offers a promising and well-tolerated strategy to boost anti-tumor immunity alone or in combination with checkpoint inhibitors.

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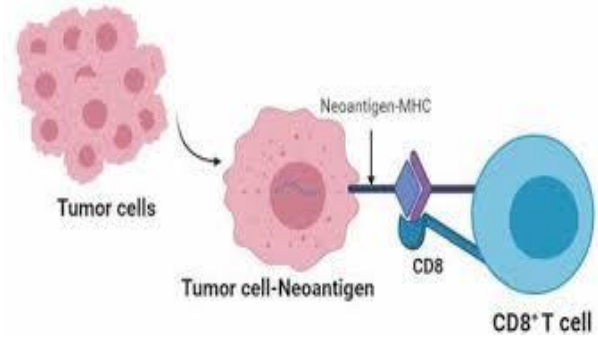
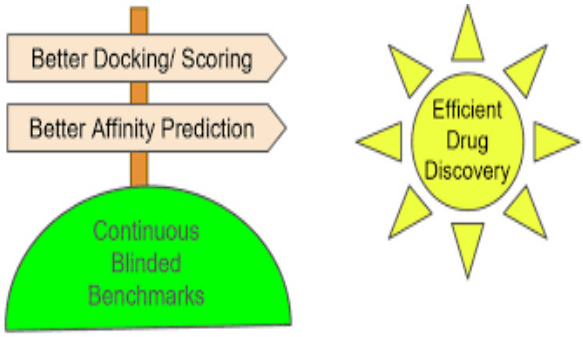


RNA neoantigen vaccines prime long-lived CD8+ T cells in pancreatic cancer

Zachary Sethna et al., 2025

https://doi.org/10.1038/s41586-024-08508-4

An mRNA–lipoplex vaccine, autogene cevumeran, shows promise in pancreatic ductal adenocarcinoma (PDAC) by inducing long-lived CD8+ T cells targeting tumor neoantigens. In a phase 1 trial, patients with vaccine-induced T cells had significantly prolonged recurrence-free survival. These T cells displayed durable effector functions and tissue-resident memory-like traits, persisting for years post-vaccination. The findings suggest that neoantigen vaccines may overcome key challenges in cancer immunotherapy by promoting lasting anti-tumor immunity.



The Need for Continuing Blinded Pose- and Activity Prediction Benchmarks

Christian Kramer et al., 2025

DOI: 10.1021/acs.jcim.4c02296

Structure-based drug design (SBDD) is crucial in drug discovery but faces challenges in reliably predicting binding poses and activity. A key limitation is the absence of a standardized community benchmarking process akin to the CASP challenge for protein structure prediction. To improve prediction methods, researchers advocate for a long-term benchmarking initiative with unbiased datasets, independent validation, and a dedicated platform for scientific exchange to drive progress in predictive accuracy.

RECOMMENDED EVENTS

The Science & SciLifeLab Prize for Young Scientists 2025! Now open for applications:

The prize is awarded annually to one young scientist for outstanding life science research for which they were awarded a doctoral degree in the previous two years. The topic of the entrant's thesis research must be in one of the following categories: Cell and Molecular Biology; Genomics, Proteomics, and Systems Biology approaches; Ecology and Environment; Molecular Medicine.

Prize money: USD 30,000 for the grand prize winner, USD 10,000 for each of the category winners.

https://www.science.org/content/page/how-enter-science-scilifelab-prize-young-scientists?utm_medium=email&utm_source=publishing-sfmc&utm_campaign=prizes2024&utm_content=scilifelab&utm_id=recyAUk5cctAcZYQy&et_rid=51389519&et_cid=5570180

AB/0325 - Assay Biologists

Exciting opportunities are now available for assay biologists and enzymologists in the Drug Discovery Bioscience group at Astex, contributing to the drug discovery process from target evaluation to candidate selection. Working in multi-disciplinary teams with structural biologists, biophysicists, chemists and cell biologists, the successful candidates will have the opportunity to apply their knowledge of enzyme and protein mechanisms to optimise fragment hits to lead compounds.

https://www.ziprecruiter.co.uk/jobs/368130231-ab-0325-assay-biologists-at-astex-pharmaceuticals

GSK Scientific Director, Respiratory, Stevenage, United Kingdom

Reporting to and working closely with the Head of Respiratory Biology, the Scientific Director of Respiratory Biology will be a key individual in building a next generation respiratory strategy for COPD, IPF and related lung diseases and to support continued progression and expansion of the existing respiratory clinical portfolio. The successful candidate will work with their respiratory biology team, RIIRU clinical and translational partners, and the larger GSK matrix for internal research and external academic collaborations to deliver new targets and candidate drugs for respiratory diseases.

https://jobs.gsk.com/en-gb/jobs/417913?lang=en-us&source=LinkedIn