Patient Wellness First

Issue # 44: 1 March 2026

BioSciTech biweekly NEWS

## NEWS & COMMENTARIES

### Featured event

### Steve Rees Webinars: Choosing Healthcare career

For young people passionate about STEM, understanding where that passion can lead is key to building a rewarding career. On 11 March, Steve Rees will be sitting down with Lynn Perry, CEO of Barnardo's, alongside our UK leadership team, to discuss exactly that. We're inviting 14–24 year olds to join us for a virtual conversation. We'll be discussing what drives us as leaders, why we chose careers in healthcare, and just how diverse and exciting this sector can be. If you know someone who would benefit from attending please share and ask them to register!

**https://astrazeneca.zoom.us/webinar/register/WN_BAwQ762rRi-ISo04Uejn0Q?utm_source=linkedin&utm_medium=azuk+corporate&utm_term=493#/registration**


### The AlphaFold Database

We welcome new datasets from communities with deep domain expertise.

This update reinforces AlphaFold Database's role as an inclusive, community-driven resource.

From today, the first community generated datasets are accessible in the database, including:

- Microbial proteomes: 17 million structure predictions for bacterial proteins from the All The Bacteria project, supporting antimicrobial resistance research.
- Neglected tropical diseases: Protein structure predictions for parasites associated with tropical diseases, developed by the Wheeler Lab at the The University of Edinburgh
- Viral protein structure predictions:

**https://lnkd.in/e5a85qfN**

### Biotech & HealthTech Startups! Applications are now open for a global program in Saudi Arabia!

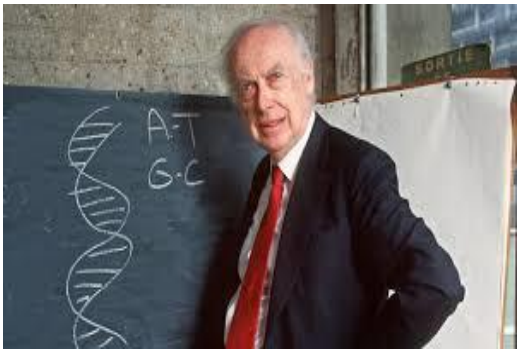
If your project is ready to scale internationally and secure venture capital, check out the Biotechnology Venture Readiness Program 2026 at Saudi Biotechnology Accelerator

What's in it for you:

- Get investment-ready for venture capital.
- Gain access to the rapidly growing Saudi Arabian and MENA

**https://lnkd.in/dd_ibEaN**

## SELECTED PUBLICATIONS




### James D. Watson (1928–2025): Influencer of science and society

**Jan Witkowski and Bruce Stillman, 2026**

**https://doi.org/10.1073/pnas.2600779123**

James Dewey Watson who died on November 7, 2025, at the age of 97, was a towering figure in 20th century life science. With Francis Crick, he determined the structure of DNA, laying the foundation of modern biology; he made Cold Spring Harbor Laboratory one of the world's great biomedical research institutes and a center for professional education in molecular biology and neuroscience; he established the Human Genome Project and ensured that research on the associated ethical, legal, and social issues was part of the project; he created a classic textbook that revolutionized the style of the genre; and he wrote one of the most interesting and controversial books on science for scientists and nonscientists alike.

### Cancer in disguise: a parasite within

**Marek Wagner & Shigeo Koyasu, 2026**

**https://doi.org/10.1038/s44318-025-00691-y**

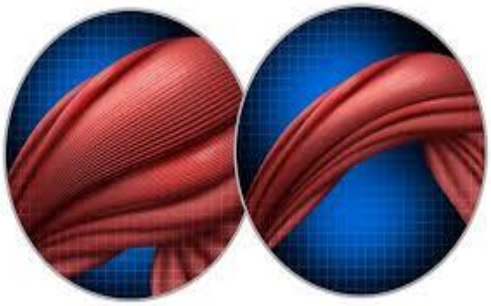
Cancer strategically exploits its host by mimicking parasitic helminths, using conserved survival tactics like immune evasion and tissue remodeling. This resemblance triggers type-2 immune responses, traditionally anti-parasitic, revealing new insights into tumor immunity and potential therapeutic approaches.

### Individualized mRNA vaccines evoke durable T cell immunity in adjuvant TNBC

**U. Sahin et al., 2026**

**https://doi.org/10.1038/s41586-025-10004-2**

An individualized neoantigen mRNA vaccine was tested in 14 triple-negative breast cancer (TNBC) patients post-surgery and therapy, eliciting strong, durable T cell responses in nearly all. These T cells developed into cytotoxic effector and stem cell-like memory subsets. Eleven patients remained relapse-free up to six years, while three relapsed due to weak responses, MHC class I loss, or distinct tumor genetics, highlighting vaccine feasibility and immune escape challenges.

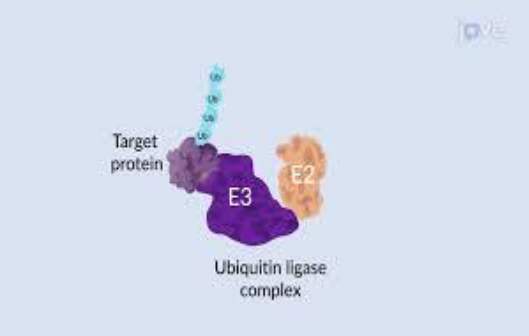


## Tumor-secreted clusterin promotes cachectic fat wasting via disrupting circadian gene expression and adipogenesis

**Yan Liu et al., 2026**

**https://doi.org/10.1038/s44318-025-00661-4**

This study reveals that tumor-secreted clusterin (CLU) drives white adipose tissue loss in triple-negative breast cancer (TNBC) by disrupting circadian gene expression via scavenging 14-3-3 and inhibiting BMAL1 translocation. PKP3 stabilizes CLU by preventing its lysosomal degradation, with elevated CLU, PKP3, and PER3 linked to cachexia.

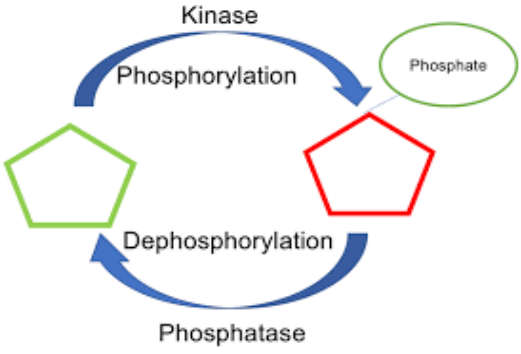



## Bacterial ubiquitin ligase engineered for small molecule and protein target identification

**James S Ye et al., 2026**

**https://doi.org/10.1038/s44318-025-00665-0**

We engineered Legionella SidE ligases into SidBait, a modular proximity ligation tool to identify small molecule and protein targets. Validated by known interactions, SidBait revealed ribociclib's off-target inhibition of CaMKII and identified CapZ as a target of Legionella effector RavB, demonstrating its utility.




## Deciphering phosphorylation TACtics: Advances in phosphorylation targeting strategies and bifunctional modalities

**Dong-Ting Ke et al., 2026**

**DOI: 10.1016/j.chembiol.2025.12.012**

Phosphorylation dynamics, regulated by kinases and phosphatases, are crucial for cellular function, with abnormalities leading to diseases. Recent advances in small-molecule kinase inhibitors and bifunctional modalities—such as PhosTACs and PHICS—offer innovative, event-driven therapeutic strategies, highlighting their mechanisms, benefits, and limitations in targeting phosphorylation for disease treatment.

## Leveraging probabilistic forecasts for dengue preparedness and control: The 2024 Dengue Forecasting Sprint in Brazil

**Eduardo Correa Araujo et al., 2026**

**https://doi.org/10.1073/pnas.2508989123**

The Infodengue-Mosqlimate Dengue Challenge 2024 involved six international teams developing dengue forecasting models using case, sociodemographic, and climate data to predict Brazil's 2024-2025 seasons; their evaluated and ensembled models now support the Brazilian Ministry of Health's dengue response strategy.


## The psychological ability to adopt recommended coping responses reduced infections during the COVID-19 pandemic

**Hansen et al., 2026**

**https://doi.org/10.1073/pnas.2415344123**

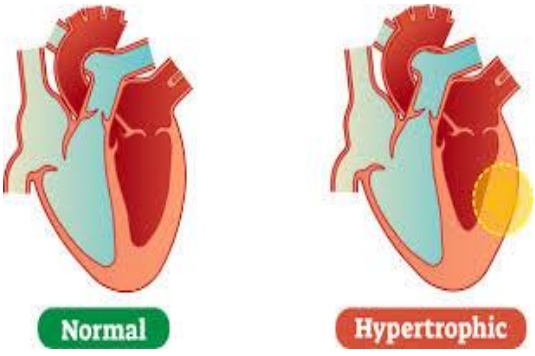
During the COVID-19 pandemic, excessive threat-focused communication led to fatigue and stigmatization, proving ineffective in motivating protective behavior; instead, enhancing coping ability better supports public response in health crises.

## Engineering chimeric antigen receptor CD4 T cells for Alzheimer's disease

**Pavle Boskovic et al., 2026**

**https://doi.org/10.1073/pnas.2530977123**

Alzheimer's disease (AD) is the leading cause of age-related dementia, with current treatments primarily involving antibody-based immunotherapy, which has limited cognitive benefits and risks for patients. Recent evidence indicates a role for T cells in AD, particularly CD4+ T cells that can mitigate inflammation and enhance cognitive outcomes in mouse models. This study engineered CD4+ T cells with chimeric antigen receptors (CARs) that target fibrillar amyloid-β aggregates, demonstrating that optimized CAR-T cells can reduce amyloid deposition and brain pathology while promoting the recruitment of endogenous CD4+ T cells. The results suggest the potential of CAR-T therapy to modify amyloid pathology and alter the immune environment in the CNS, indicating a promising direction for future cellular immunotherapies in neurodegenerative diseases.

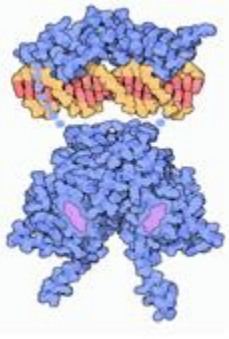



## Discovery of small molecule modulators of the thin filament that alter the contractile profile in a hypertrophic cardiomyopathy engineered tissue model

**Sommese et al., 2026**

**DOI: 10.1016/j.jbc.2025.110938**

Both cardiomyopathies and heart failure involve changes in the contractile function of myocardium, impacting either force generation (systolic function) or relaxation (diastolic function) of sarcomeres. Studies highlight the thin filament complex's pivotal role in cardiac muscle contraction and relaxation. Researchers employed high-throughput screening to find small molecules that bind to the cardiac thin filament, inducing calcium desensitization. After optimizing these compounds for potency and solubility, target engagement was confirmed through calorimetry. Several compounds displayed varied profiles in mouse muscle fiber assays. Two candidates showed mixed pharmacological properties when tested in an engineered hypertrophic cardiomyopathy model, affecting both contraction and relaxation kinetics.

## Multiple modes of transcriptional regulation by the nuclear hormone receptor RARγ in human squamous cell carcinoma

**Xiao-Han Tang; · Lorraine J. Gudas, 2026**

**DOI: 10.1016/j.jbc.2025.110965**

Vitamin A metabolism through nuclear retinoic acid receptors (RARs) is crucial for embryogenesis, immune function, and cell differentiation. RARγ, particularly expressed in epithelial cells of the oral cavity and skin, exhibits antitumorigenic properties in oral cavity squamous cell carcinoma (OCSCC). This study integrates genome-wide RARγ binding, chromatin histone marks, and transcriptomics in OCSCC to define RARγ signaling pathways. Key findings reveal reduced expression of genes linked to cell differentiation, including NOTCH1, NOTCH3, JAG2, and DLL1 in RARGKO cells, alongside altered expression of genes regulating cell identity and extracellular matrix communication. Direct RARγ targets include RARG, PPARG, and RXRA, indicating RARγ's role in gene transcription regulation via RXRα.

## The carcinogenic consequences of the plastic pollution crisis

**Somarelli et al., 2026**

**https://doi.org/10.1172/JCI203775.**

The invention of synthetic plastic polymers in the early 20th century has significantly transformed daily life, impacting construction, medical devices, and food packaging. Plastic's versatility, durability, and affordability have led to its widespread use in numerous applications. It encompasses a variety of hydrocarbon polymers, and its functional diversity is further enhanced by the addition of thousands of additives that modify its properties.

# RECOMMENDED EVENTS & JOB CORNER

EMBO YIP

## Young Investigator Programme

The Young Investigator Programme supports group leaders in the early stages of setting up their independent laboratories in an EMBC Member State, Chile, India, Singapore or Taiwan. The programme provides financial support for networking, training opportunities, support for lab members and mentoring. It organises the annual EMBO Young Investigator Meeting and facilitates the international network of more than 800 current and former Young Investigators, Installation Grantees and Global Investigators.

**https://www.embo.org/about-embo/programmes-and-activities/young-investigator-programme/**

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## Oxford Vaccine Group

The Oxford Vaccine Group are currently recruiting for a wide range of positions within the group and you may be the exceptional candidate we are looking for to join our diverse team!

Join a world-leading academic research group conducting clinical and translational studies to advance vaccine development working with a diverse portfolio funded by industry, government and charitable organisations.

Interested in learning more about our current vacancies or ready to apply? Head to the vacancies page on the Oxford Vaccine Group website, linked

**https://www.ovg.ox.ac.uk/about/recruitment**


## Biognosys Group Conference 2026 | Multiomics in Drug Discovery

Leveraging Multiomics to Deconvolute Biological Complexity and Drive Drug Discovery Forward Participants are invited to submit abstracts for scientific contributions.

Selected submissions will be featured as oral communications, with remaining abstracts presented as posters.

Submission Deadlines

**https://www.biognosys-conference.org/**

## AMI PiTCH Fellowship Program | Meet the 2026 Phase 1 Train-the-Trainer Mentorship Cohort

This cohort brings together a diverse group of scientists and researchers who are committed to strengthening microscopy training, mentorship, and knowledge exchange across Africa through global collaboration.

**https://www.training.microscopy.africa/pitchfellowshipprogram**

## Kindly Share BioSciTech With Your Network

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