FREE

BioSciTech BiWeekly Newsletter

1 June 2026 (Issue 50)

SELECTION FROM THE PAST TWO WEEKS

Hottest News In Biotech, BioResearch, Pharma, BioHealth
Highly Selected Research Papers & Patents
Best Recommended Events and Studentship.

Produced by Dr. Mohamed Boudjelal
DZ-CNRST Member

NEWS & COMMENTARIES & PATENTS WATCH

- **WO2026087755** focuses on engineering antibody Fc regions with specific Fc receptor binding properties**.**
- **WO2026097024** details engineered multispecific T cell engagers (TCE) to address limitations in conventional cancer immunotherapies, like antigen escape and T cell activation.
- **WO2026082020** outlines bispe**cific** antibody–drug conjugates (ADCs) targeting B7-H3 and EGFR, co-expressed in certain tumors like NSCLC, enabling dual-targeting strategies.
- **WO2026077382** features aptamer–ligand conjugates aimed at degrading Dickkopf-related Protein 1 (DKK1), involved in various conditions including cancer and bone disorders.
- **WO2026073159** describes long-acting, balanced triple agonist peptides targeting GLP-1R, GIPR, and glucagon receptors aimed at combating obesity and type 2 diabetes.

- **Tecentriq** Food and Drug Administration approved atezolizumab (Tecentriq, Genentech, Inc.) and atezolizumab and hyaluronidase-tqjs (Tecentriq Hybreza, Genentech, Inc.) as adjuvant treatments for adults with muscle invasive bladder cancer (MIBC) after cystectomy .
- **Signatera CDx**: FDA also approved Signatera CDx (Natera, Inc.) as a companion diagnostic device to select patients with MIBC after cystectomy who have ctDNA MRD for adjuvant treatment with Tecentriq or with Tecentriq Hybreza.

NEWS & COMMENTARIES & PATENTS WATCH

Science Magazine Tell US: The Origin of COVID19

Virologist Ralph Baric faces a U.S. government ban on federal funding due to allegations of a "pattern of deception" in his virus studies prior to the COVID-19 pandemic. The Department of Health and Human Services (HHS) has suspended his funding and initiated formal debarment proceedings, which may last over three years. Although UNC announced Baric's retirement at 72, he intends to appeal the debarment, likely seeking legal assistance from the university.

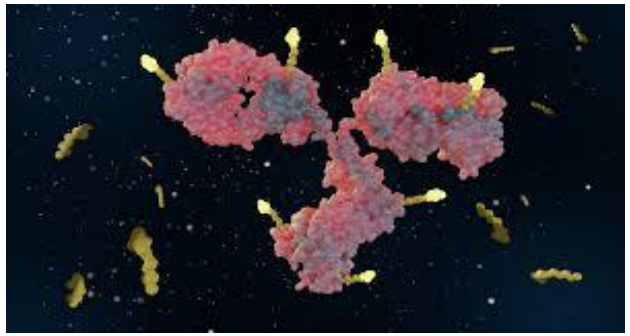
DOI: 10.1126/science.aej0204

Trends in the landscape of clinical trials of innovative drugs in China since 2015

The evolution of China's clinical trial landscape has been shaped by a series of regulatory reforms initiated in 2015. The State Council's directive to reform the review and approval system for drugs and medical devices marked a pivotal turning point, introducing stringent data verification requirements to ensure data authenticity and integrity. Subsequent policies established the implied license system, streamlined investigational new drug (IND) review timelines and enhanced transparency in trial registration and oversight. Against this backdrop, we analysed trial registration data from 2015 to 2025 to evaluate how companies based in China and elsewhere have adapted to these changes.

https://www.nature.com/articles/d41573-026-00081-x

SELECTED PUBLICATIONS



Navigating the clinical progress of antibody-drug conjugates: Emerging opportunities and remaining challenges

Louise Conilh et al., 2026

DOI: 10.1016/j.cell.2026.04.016

Antibody-drug conjugates (ADCs) are rapidly advancing anticancer therapies that target tumor cells, enhancing safety for both hematologic and solid tumors. This review highlights the need for evolving ADC biology as they are integrated into earlier-stage treatments and combinations, underscoring the importance of patient selection and managing toxicity. While surgical and localized therapies remain the most effective methods for cancer cure, systemic therapies are essential when tumors are inoperable. The challenge lies in achieving a favorable therapeutic index to balance antitumor activity with systemic toxicity.

A comparison of deep multiomics profiles across ethnicity, geography, and age

Nasim Barapour et al., 2026

DOI: 10.1016/j.cell.2026.04.032

A comprehensive study involving multiomics profiling of 322 healthy individuals from diverse ancestries revealed significant ethnicity-associated molecular features impacting metabolism, autoimmune disease risk, drug metabolism, and neurodegenerative pathways. The research highlighted ancestry- and geography-related molecular changes that influence metabolism, immune function, microbiome composition, and biological aging. Notably, East Asians displayed a lower biological age in ancestral regions, while Europeans had a lower biological age in the US/Canada. The study also found ethnicity-specific diet-microbiome interactions linked to health.

mRNA vaccine immunity is enhanced by hepatocyte detargeting and not dependent on dendritic cell expression.

Marks et al., 2026

https://doi.org/10.1038/s41587-026-03099-z

This study explores how the cell type that expresses mRNA from vaccines influences immune responses. Researchers used synthetic microRNA target sites (miRT) to selectively silence mRNA expression in specific cell types—professional antigen-presenting cells (pAPCs), hepatocytes, or myocytes—delivered via lipid nanoparticles. They found that mRNA expression in pAPCs is not essential for activating antigen-specific T cells, while expression in myocytes can induce strong immune responses, possibly through mechanisms like cross-presentation.

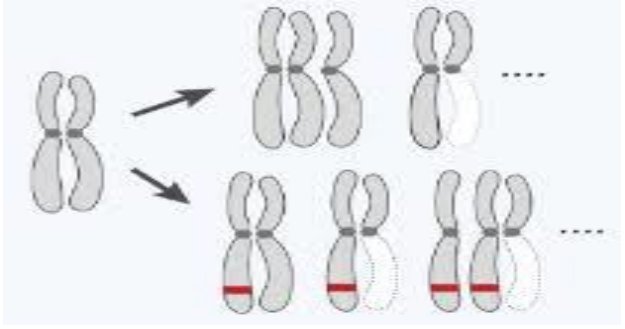
SELECTED PUBLICATIONS

Mechanism-guided identification of antidepressant G protein-coupled receptor drug targets

Hermany Munguba et al., 2026

DOI: 10.1016/j.cell.2026.04.006

This study explores the neural and molecular mechanisms underlying depression and how the antidepressant ketamine exerts its effects. The researchers found that ketamine's behavioral benefits depend on mu-opioid receptors (MORs) located on somatostatin-expressing interneurons (Sst+ INs) in the medial prefrontal cortex (mPFC). Chronic stress causes these interneurons to become hypertrophic, leading to excessive inhibition of pyramidal neurons, a process reversed by ketamine. Using RNA sequencing, the team identified GPCRs enriched in Sst+ INs as potential antidepressant targets.

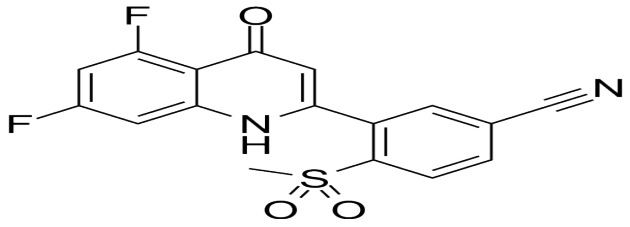


Cancer type-specific variation in patterns of driver alterations across 50,000 tumors

Chaitanya Bandlamudi et al., 2026

https://www.cell.com/cancer-cell/fulltext/S1535-6108(26)00155-8

This study analyzes how somatic driver mutations influence cancer development differently depending on tissue type. By examining over 54,000 tumors across nearly 450 cancer subtypes, the researchers identified 164 new mutation hotspots and revealed that about one-third of driver mutations occur outside their typical contexts, often showing features like increased subclonality and later appearance. They found that patterns such as gene fusions and co-occurring mutations are linked to earlier disease onset within specific cancer types. Additionally, the study uncovers ancestry-related differences in neoantigens affecting immunotherapy eligibility and identifies cancer-type-specific mechanisms of resistance, such as HLA loss



A small-molecule inverse agonist of PPARγ for advanced solid tumors: a phase 1 trial

Matthew D. Galsky et al., 2026

DOI: 10.1038/s41591-026-04263-3

This study reports on the initial phase 1A trial of FX-909, an oral PPARγ inverse agonist, in 56 patients with advanced solid tumors, including 46 with urothelial carcinoma. The primary goal was to assess safety and tolerability, with secondary aims to determine the recommended phase 2 dose, pharmacokinetics, and preliminary antitumor effects. FX-909 was generally well tolerated, with manageable adverse events such as anemia, thrombocytopenia, fatigue, and hyperglycemia. Doses of 30 mg and 50 mg daily were identified as suitable for further testing. About 17.5% of urothelial carcinoma patients showed tumor responses, particularly those with high PPARγ expression.

SELECTED PUBLICATIONS

Real-world clinical utility of tumor whole-genome sequencing in solid cancers

van Putten et al., 2026

DOI:10.1038/s41591-026-04280-2

This study highlights the clinical value of routine whole-genome sequencing (WGS) in precision oncology for 888 patients with solid tumors. WGS successfully provided results in 89% of cases within a median of 6 days, identifying potentially actionable biomarkers in 73% of patients—27% for reimbursed therapies and 63% for experimental options. About 40% of patients with actionable biomarkers began biomarker-informed treatment within a year, which was associated with a 31% longer median overall survival (+96 days) compared to those not receiving such therapy. In patients without prior systemic therapy, biomarker-guided treatment significantly improved survival outcomes. For cancers of unknown primary, WGS aided diagnosis or identified treatment options in 67% of cases, with 68% starting tumor-specific therapy. Additionally, pathogenic germline variants were found in 6.5% of patients. Overall, WGS diagnostics influenced clinical decisions in 41% of cases, demonstrating its versatility and utility in routine solid cancer management.

Long-term efficacy and safety of the single-dose tetravalent Butantan dengue vaccine

Kallás et al., 2026

DOI:10.1038/s41591-026-04255-3

The study evaluated the long-term safety and effectiveness of the Butantan dengue vaccine (Butantan-DV) in individuals aged 2–59 in Brazil. Conducted as a double-blind, placebo-controlled phase 3 trial with 16,235 participants, the trial aimed to assess vaccine efficacy (VE) against symptomatic dengue caused by any DENV serotype, 28 days post-vaccination. Over five years of follow-up, the vaccine demonstrated an overall VE of 65.0%. It was particularly effective in dengue-experienced participants (77.1%) and dengue-naive participants (58.9%). The vaccine showed high efficacy against DENV-1 (73.0%) and DENV-2 (55.7%), with no cases observed for DENV-3 or DENV-4. VE against severe dengue or dengue with warning signs was 80.5%. The most common side effect was headache, mostly mild, and no safety concerns emerged during the follow-up period. Overall, a single dose of Butantan-DV provided durable protection against virologically confirmed dengue without safety issues.

RECOMMENDED EVENTS & STUDENTSHIP

BioTechniques Image Competition 2026.

Each year, this competition reminds us that creativity is at the core of innovative research. Now, it's your turn to share your scientific images with

Prizes:

A US$200 gift card

The winning image will be the cover of a print BioTechniques journal issue next year

https://share.hsforms.com/1_sLX470VR46zYhnyYwupuA43r86

SMR Mentorship Sign-up Form

To support the development of early career researchers (ECRs), the SMR offers opportunities for ECRs to receive mentorship from an SMR committee member.

Please provide a brief summary of your background, motivation for applying to this mentorship programme, and what you hope to gain from working with a mentor.

Please note, this expression of interest does not guarantee assignment of an SMR mentor. Please contact secretariat@smr.org.uk with any questions or queries.

https://docs.google.com/forms/d/e/1FAIpQLSfDwHz6VHodjzZoBwadDsEsrcwEWZoJqVKeMQr8jNI2S2BAYQ/viewform

Studentship: UK Research Innovation (UKRI), Expanding European Excellence (E3)

The studentship includes:

Stipend set at the UKRI Minimum Doctoral Stipend rate. For 26/27 this is £21,805 per annum.

- Tuition/programme fees
- Contribution to research support fees for; lab consumables, travel, computing hardware, publications.
- The duration of the funding package is 4 years.

Projects:

- Permeability-limited bifunctional antimalarials
- Covalent inhibition as an antimalarial strategy
- Understanding immune priming and memory during influenza and coronavirus vaccine co-immunization

https://lstmed.ac.uk/study/research-degrees/ukri-e3-funded-studentships/

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