

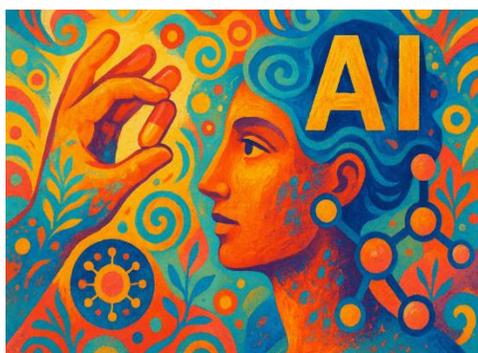
NEWS & COMMENTARIES

FEATURED EVENT: DO NOT MISS
The 3rd International Conference on Clinical Trials 2026

Feb 4-5, 2026 | Narcissus The Royal Hotel, Riyadh.
Voice of Hope

The Third International Conference on Clinical Trials, held on February 4–5, 2026 under the theme “Voice of Hope”, embodies a dynamic global platform where minds converge and expertise intersects, serving as a starting point toward more humane and innovative horizons.

<https://icct2026.com/en/>


LIGAND-AI: €60M Open Science Push Brings AI to Drug Discovery

The LIGAND-AI consortium has launched a €60 million program to apply large-scale AI and open science to early-stage drug discovery. Backed by the Innovative Health Initiative, the project brings industry and academia together to generate and share the high-quality biochemical and structural data needed to train next-generation molecular models.

<https://healthaiinsiders.com/ligand-ai-open-science-ai-drug-discovery-60m/>


Top product forecasts for 2026

After some big shifts at the top of the pharmaceutical industry in recent years, the top product rankings for 2026 show some signs of stability, based on the make-up of the top ten cohort at least. There is no change to the cast of products that comprise the anticipated top ten in 2026 compared to the analogous group last year when looking ahead to 2025 (Nat. Rev. Drug Discov. 24, 8; 2025), although there are some ranking movements

<https://www.nature.com/articles/d41573-025-00203-x>

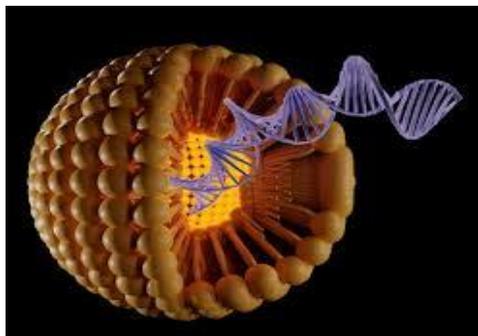

Collection of Best Articles on Lipid nanoparticles for gene and cell therapy

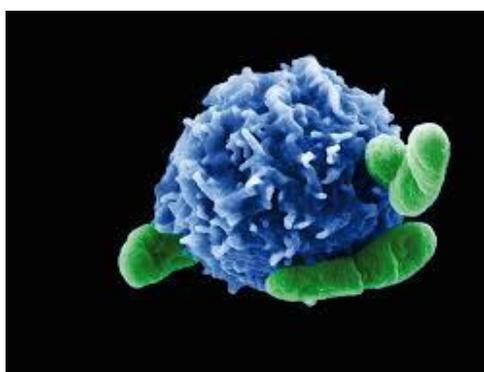
Illustration of a cross-section of a lipid nanoparticle containing therapeutic cargo. This collection highlights how advances in nanotechnology and LNP design are driving more precise, effective therapies and reshaping the future of medicine.

<https://www.cell.com/molecular-therapy-family/advances/collections/lipid-nanoparticles-for-gene-and-cell-therapy>

SELECTED PUBLICATIONS

RNA modification systems as therapeutic targets
Linda Zhang et al., 2026
<https://doi.org/10.1038/s41573-025-01280-8>

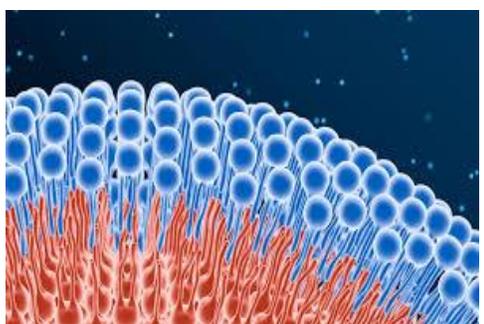
Cellular enzymes modify ribonucleotide bases to regulate RNA metabolism, with abnormal RNA modification proteins linked to diseases, prompting therapeutic interest. This review highlights the N6-methyladenosine pathway, early inhibitor developments, and the potential of targeting RNA modifications to treat cancer, enhance immunotherapy, and improve stem cell therapies.


Next steps in regulatory T cells: Biology and clinical application
Chengyu Zou et al., 2026
DOI: 10.1016/j.cell.2025.11.035

Recent advances in regulatory T cell (Treg) biology and therapies position Tregs as a “living drug” to restore immune tolerance and repair tissues, highlighted by promising low-dose interleukin-2 trials for ALS, adoptive Treg transfer preventing GVHD, and emerging CAR Treg studies, guiding future precision tolerance strategies.


Antithrombotic Therapy after Successful Catheter Ablation for Atrial Fibrillation
Atul Verma et al., 2026
DOI: 10.1056/NEJMoa250968

In an international trial of 1284 patients post-successful atrial fibrillation ablation with stroke risk factors, participants were randomized to aspirin or rivaroxaban and followed for 3 years. MRI scans assessed new covert embolic strokes. The study found no significant difference between rivaroxaban and aspirin in reducing the composite outcome of stroke, systemic embolism, or new covert embolic stroke.


De novo discovery of bicyclic cysteine-rich peptides targeting gasdermin D
Choi Yi Li et al., 2026
<https://doi.org/10.1073/pnas.2516051123>

Pyroptosis, driven by gasdermin D (GSDMD), is implicated in autoimmune, neurodegenerative diseases, and cancer, yet no selective GSDMD inhibitors have reached clinical trials due to toxicity issues. This study identifies bicyclic peptides that bind GSDMD with high affinity, inhibit caspase cleavage, and reduce interleukin-1 β secretion, offering promising therapeutic leads.



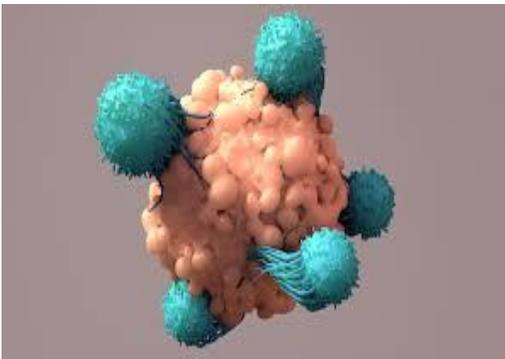
Malaria vaccine protection against intradermal or venous parasites: a randomized phase 2b human challenge trial

Kapulu et al., 2026

<https://doi.org/10.1038/s41591-025-04107-6>

A phase 2b randomized controlled trial in Kenya evaluated the efficacy of two malaria vaccines, R21/Matrix-M and ME-TRAP, against *Plasmodium falciparum* sporozoite challenge via intradermal (ID) or direct venous injection (DVI). R21/Matrix-M showed strong protection against ID sporozoites, with none of the

vaccinated volunteers meeting treatment criteria, while all R21 recipients challenged by DVI became infected. ME-TRAP and control groups showed high infection rates regardless of route. Adverse events were mostly mild and common post-challenge symptoms. The study highlights that vaccine efficacy varies by sporozoite inoculation route, suggesting that correlates of protection should be assessed separately for ID and DVI challenges in clinical development.



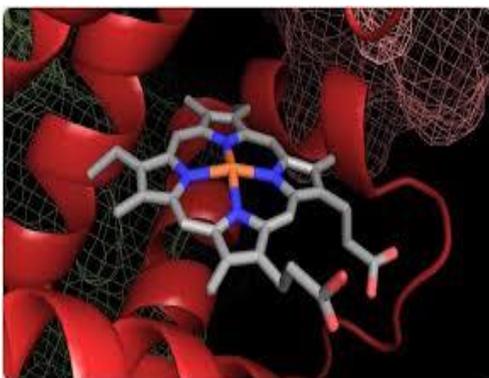
Bispecific antibodies and CAR T cells targeting a TP53 mutation–associated neoantigen show discordant affinity requirements

Sarah R. DiNapoli et al., 2026

<https://doi.org/10.1172/JCI192885>.

Mutation-associated neoantigens (MANAs) are highly cancer-specific targets for immunotherapy where peptides derived from intracellular mutant proteins are presented on the cell surface via HLA molecules. T cell-engaging bispecific antibodies and CAR T cells can target MANAs to eliminate cancer cells via T cell

activation. However, the low antigen density of MANAs on the cell surface can limit therapeutic efficacy. Here, we investigated whether increasing the affinity of the H2 single-chain variable fragment (scFv) targeting the p53 R175H MANA (HMTEVVRHC presented on HLA-A*02:01) improves its therapeutic effect. We identified higher-affinity H2 variants via phage biopanning and a thiocyanate elution method.

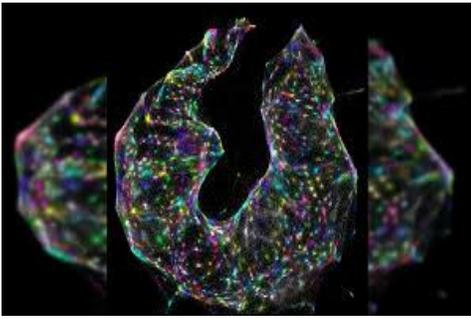


Inhibition of heme biosynthesis triggers cuproptosis in acute myeloid leukemia

Lewis et al., 2026

DOI: 10.1016/j.cell.2025.10.028

Heme biosynthesis is a selective vulnerability in acute myeloid leukemia (AML), especially in leukemic stem cells, which downregulate heme biosynthesis enzymes (HBEs) to promote self-renewal. Inhibiting HBEs disrupts mitochondrial Complex IV and copper homeostasis, triggering cuproptosis, while synthetic lethal pathways like glycolysis offer combination therapy opportunities.



Fluorogenic CRISPR for DNA imaging in live mammalian cells

Wenjin Wan et al., 2026

[https://www.cell.com/cell-chemical-biology/abstract/S2451-9456\(25\)00350-2](https://www.cell.com/cell-chemical-biology/abstract/S2451-9456(25)00350-2)

Spatiotemporal imaging of DNA in live cells helps understand health and disease. Traditional CRISPR imaging tools have high noise and low clarity. New fluorogenic CRISPR tools only light up when binding to DNA, improving sensitivity. This review describes

four strategies using different fluorogenic reporters for DNA monitoring.



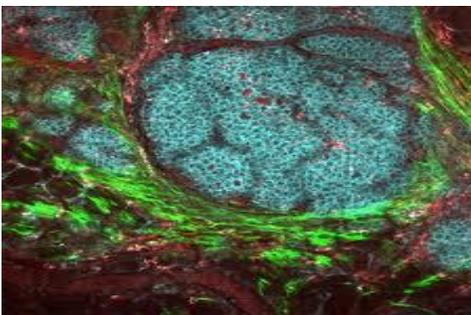
Tumor-secreted clusterin promotes cachectic fat wasting via disrupting circadian gene expression and adipogenesis

Yan Liu et al., 2026

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

Fat mass loss in cancer-associated cachexia is serious but not fully understood. This study finds that the chaperone clusterin (CLU) released by tumors causes fat depletion in triple-negative breast cancer (TNBC). Increased serum CLU in cachectic TNBC patients

affects circadian rhythm genes. Targeting PKP3 or CLU can restore gene expression and reduce fat loss.



Tumor-produced ammonia is metabolized by regulatory T cells to further impede anti-tumor immunity

Jian Gu et al., 2026

[DOI: 10.1016/j.cell.2025.11.034](https://doi.org/10.1016/j.cell.2025.11.034)

The adaptation of regulatory T cells (Tregs) in tumors is not well understood. Research shows that Tregs thrive in high ammonia and glutamine areas of liver cancer, using the urea cycle to detoxify ammonia. This enhances Treg function and supports tumor

growth, suggesting ammonia production could be targeted in therapies.



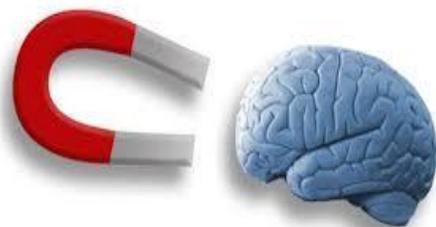
Establishing the relationship between brain cellular senescence and brain structure

Anina N. Lund et al., 2026

[DOI: 10.1016/j.cell.2025.10.014](https://doi.org/10.1016/j.cell.2025.10.014)

Cellular senescence and brain atrophy relate to brain aging, indicating shared biological processes. This study used neuroimaging and gene expression data from prefrontal cortex tissue to identify gene signatures linked to neuroimaging features and senescence. Associations were found in neurons and microglia,

impacting brain development and aging.



BRAIN-MAGNET: A functional genomics atlas for interpretation of non-coding variants

Ruizhi Deng et al., 2026

DOI: 10.1016/j.cell.2025.10.029

Genome-wide assessment of genetic variation is becoming common, but interpreting non-coding single nucleotide variants in diseases is difficult. Researchers used ChIP-STARR-seq to study non-coding regulatory elements in brain development. They developed BRAIN-MAGNET, an AI method to analyze genome data, aiding in

identifying disease-causing variants in neurogenetic disorders.

RECOMMENDED EVENTS & JOB CORNER



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AI is now policy backed but implementation still lags behind. The Health + AI Tech Show is where pilots stop and deployment begins. Clinically led, procurement ready and focused on scaled impact. The next 3 years won't be about proving AI works. It'll be about delivering it.

<https://healthaiinsiders.com/events/>



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<https://oxfordglobal.com/discovery-development/events/discovery-development-europe/drug-discovery-europe>



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ELRIG The Drug Discovery Community

EARLY CAREER PROFESSIONAL

Cell and Gene Therapy 101

REGISTRATION OPEN

WEBINAR

DATE: 9 February

TIME: 12:30-13:30

Calling Early Career Professionals In the lead-up to Cell & Gene Therapy 2026, we're hosting a 'Cell & Gene Therapy 101' webinar,

designed especially for early career professionals who want a clear, practical introduction to this fast-moving field.

https://us06web.zoom.us/webinar/register/WN_05KMLIcIRHqfYIEiAkU9Dw#/registration



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